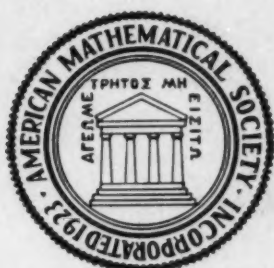


# Mathematical Reviews



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Girault, Maurice Préférences aléatoires ou agrégation aléatoire de relations d'ordre. [Random preferences or random aggregation of orderings] (See 85m:00005)

Huang, Zhen De (with Tong, Zeng Xiang) The spaces of fuzzy probability and possibility. I. (See 85h:03003)

Shafer, Glenn A subjective interpretation of conditional probability. 85g:60008a

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Wang, Pei Zhuang Random subsets and contactability measures. (Chinese. English summary) 85c:60002

(with Zhang, Nan Lun) Falling space—the probabilistic description of fuzzy subsets. (Chinese. English summary) (Not in MR)

Yager, Ronald E. Probabilities from fuzzy observations. 85e:60003

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Barigelli, Bruno (with Scozzafava, Romana) Remarks on the role of conditional probability in data exploration. 85e:62005

Georgescu, Georges On the Popper-Carnap probability functions in polyadic algebras. 85d:03124

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Hallperin, Theodore Probability logic. 85m:03013

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Morgan, Charles G. (with Leblanc, Hugues) Probability theory, intuitionism, semantics, and the Dutch book argument. 85d:03045

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Shen, A. Kh. The notion of  $(\alpha, \beta)$ -stochasticity in Kolmogorov's sense and its properties. (Russian) 85e:68034

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#### 60B05 Probability measures on topological spaces

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Chevet, Simone Gaussian measures and large deviations. 85d:60013

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- Dorea, C. C. Y. (with David, H. T.; Werner, N. M.) Uniform  $\varepsilon$ -independence and the convergence in distribution of randomly indexed sequences. **85m:60043**
- Eberlein, Ernst Strong approximation of very weak Bernoulli processes. **85c:60039**
- Gordienko, E. I. Uniform exponential convergence of Markov processes in metrics corresponding to the weak topology. (Russian. English summary) **85f:60093**
- Grigelionis, B. (with Mikulevičius, R.) On contiguity and weak convergence of probability measures. **85h:60079**
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- Kim, Yong Tae (with Kim, Söng Su) Relationship between weak convergence, strong convergence and uniform integrability. (Korean. English summary) **85k:60036**
- Le Cam, L. A remark on empirical measures. **85b:60020**
- Leonenko, M. M. Convergence of distributions of functions of nonlinear transformations of Gaussian random fields. (Russian) **85i:60051**
- Liese, F. (with von Schiedt, Jürgen) A limit theorem for sequences of weakly dependent stochastic processes. **85d:60070**
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- Norberg, Tommy Convergence and existence of random set distributions. **85j:60023**
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- Bosorgnia, A. Weakly uncorrelated random elements. **85i:60007**
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- Hertle, Alexander On the asymptotic behaviour of Gaussian spherical integrals. **85g:60011**
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An integral representation of operator-self-decomposable random variables. (Russian summary) **85d:60015**

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- Kalashnikov, V. V. Metrization of the space  $D[0, \infty)$ . (Russian) **85i:60008**
- Kokae, Yu. Ch. GB- and GC-properties of generalized ellipsoids. (Russian. English summary) **85j:60009**
- Kosin, I. V. The Lebesgue decomposition for spherically invariant measures. (Russian. English summary) **85j:60010**
- Mathé, Peter A note on classes of Banach spaces related to stable measures. **85j:60011**
- Mincer, Bohdan  $U(X)$ -stable measures on Banach spaces. **85f:60007**
- Mitoma, Itaru Tightness of probabilities on  $C([0, 1]; S')$  and  $D([0, 1]; S')$ . **85f:60008**
- Morrow, G. J. Correction to: "Approximation of rectangular sums of  $B$ -valued random variables" [Z. Wahrsch. Verw. Gebiete 57 (1981), no. 2, 265-291; MR 83d:60012]. **85k:60009**
- Muskhari, D. Kh. (with Chuprunov, A. N.) Sufficient topologies and norms. (Russian. English summary) **85c:60005**
- Nguyen Van Thu Universal multiply self-decomposable probability measures on Banach spaces. **85d:60016**
- Preis, David Differentiation of measures in infinitely-dimensional spaces. **85a:60015**
- Rhee, WanSoo On the distribution of the norm for a Gaussian measure. (French summary) **85j:60012**
- Sazonov, Vyacheslav Vasil'evich (with Zaleskii, B. A.) On the rate of convergence of moments in the central limit theorem in Hilbert space. **85k:60010**
- Talagrand, Michel Mesures gaussiennes sur un espace localement convexe. (English summary) [Gaussian measures on a locally convex space] **85f:60009**
- Yang, Ya Li On the zero-one laws for the ergodic quasi-invariant measures. **85h:60010**
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- (Bastore, Jesús) See Pisier, Gilles, **85d:46022**
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- Cho, Chu Kyöng On normal diffusion processes in a Hilbert space. (Korean. English summary) (Not in MR)
- Chobanyan, S. A. (with Vakhaniya, N. N.) The linear prediction and approximation of weak second order random elements. **85b:60034**
- Chuprunov, A. N. Locally convex spaces in which each probability is dense. (Russian) **85d:46003**

- Diebolt, Jean Divergence sur l'espace de Wiener et relèvement d'opérateurs différentiels. (English summary) [Divergence on the Wiener space and lifting of differential operators] **85g:60056**
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- Gerasimenko, T. S. Estimation of the accuracy of approximation of an integral in a Hilbert space by multiple integrals. (Russian) **85f:41014**
- Itô, Kiyosi (with Nawata, Masako) Regularization of linear random functionals. **85h:60053**
- Kharasishvili, A. B. Absolute nonmeasurability of the unit ball in an infinite-dimensional separable Hilbert space. (Russian. English and Georgian summaries) **85b:28016**
- Krée, Mirella (with Krée, P.) Continuité de la divergence dans les espaces de Sobolev relatifs à l'espace de Wiener. (English summary) [Continuity of the divergence operator in Sobolev spaces on the Wiener space] **85g:46055**
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- Masda, Michèle Some examples of measurable norms. **85a:28010**
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- Pisier, Gilles ★ Geometría de los espacios de Banach: teoría local finito-dimensional. (Spanish) [Geometry of Banach spaces: finite-dimensional local theory] **85d:46022**
- Poncomarenko, A. I. Pseudohomogeneous random fields with values in a Banach space. (Russian) **85k:60069**
- Potocky, Rastislav Weak laws of large numbers in certain vector lattices. (Russian and Slovak summaries) **85j:60015**
- A strong law of large numbers for identically distributed vector lattice-valued random variables. (Russian summary) **85k:60012**
- Saulis, L. Large deviations for random vectors for certain classes of sets. I. (Russian) **85f:60028**
- Schachermayer, Walter The strong law of large numbers in locally convex Suslin spaces. **85g:60018**
- Ts'ai, Ts'ung Ming See Yang, Wei Ché, **85j:60103**
- Üstünel, A. S. Additive processes on nuclear spaces. **85j:60141**
- Vakhaniya, N. N. See Chobanyan, S. A., **85b:60034**
- Vladimirov, Yu. N. On a probabilistic characterization of some classes of locally convex spaces. (Russian. English summary) **85f:46004**
- Yang, Wei Ché (with Ts'ai, Ts'ung Ming) Itô's integration on 2-smooth Banach space. **85j:60103**
- Zhang, Yin Nan Quasi-invariant measures on  $\mathbb{R}^\infty$ . (Chinese. English summary) **85f:28017**
- Zhao, Zhong Xin Gaussian measures on product Banach spaces. (Chinese) **85h:60066**
- Zolotarev, V. M. Probability metrics. (Russian. English summary) **85g:60009a**
- Letter to the editors: "Probability metrics". (Russian) **85g:60009b**

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- de Acosta, A. (with Kuelbs, J.; Ledoux, M.) An inequality for the law of the iterated logarithm. **85a:60016**
- Anan'evskii, S. M. (with Miroshnikov, A. L.) Local estimates for Lévy concentration functions in a multidimensional space and in a Hilbert space. (Russian. English summary) **85f:60010**
- Araújo, Aloisio The central limit theorem in Banach spaces, Lévy measures and stable processes with continuous trajectories. (Portuguese) **85j:60013**
- Bentkus, Vidmantas-Kastytis Jurgis Asymptotics of moments in the central limit theorem in Banach spaces. (Russian) **85g:60012**
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- Estimates of the closeness of sums of independent random elements in the space  $C[0, 1]$ . (Russian. English and Lithuanian summaries) **85i:60009**
- Bothausen, E. On the probability of large deviations in Banach spaces. **85k:60011**
- Borisov, I. S. An approach to the problem of approximation of distributions of sums of independent random elements. (Russian) **85f:60011**
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- Series with independent summands in Hilbert spaces. (Russian) **85i:60010**
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- Daffer, Peter Z. (with Taylor, Robert Lee) Weak convergence of linear forms in  $D[0, 1]$ . **85c:60005**
- Dehling, Herold Limit theorems for sums of weakly dependent Banach space valued random variables. **85g:60013**
- Doukhan, Paul (with Leon, José; Portal, Frédéric) Vitesse de convergence dans le théorème central limite pour des variables aléatoires mélangées à valeurs dans un espace de Hilbert. (English summary) [Speed of convergence in the central limit theorem for mixing Hilbert-space-valued random variables] **85j:60014**
- Engl, H. W. (with Wakolbinger, A.) On weak limits of probability distributions on Polish spaces. **85h:60011**
- Faszekas, István Marcinkiewicz strong law of large numbers for  $B$ -valued random variables with multidimensional indices. (See **85g:60005**)



- Giné, Evarist (with Hahn, Marjorie G.; Zinn, Joel) Limit theorems for random sets: an application of probability in Banach space results. 85d:60019  
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- Hahn, Marjorie G. See Giné, Evarist; et al., 85d:60019
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Mesures majorantes et loi du logarithme itéré pour les variables aléatoires sous-gaussiennes. (English summary) [Majorizing measures and law of the iterated logarithm for sub-Gaussian random variables] 85d:60020
- Korzeniowski, Andrzej On Marcinkiewicz SLLN in Banach spaces. 85g:60015
- Kuelbs, J. (with Zinn, Joel) Some results of LIL behavior. 85e:60007  
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- Lawnsack, Anna T. The Lévy-Lindeberg central limit theorem in Orlicz spaces  $L_\Phi$ . 85e:60007
- Ledoux, M. Sur les théorèmes limites dans certains espaces de Banach lisses. [On limit theorems in certain smooth Banach spaces] 85d:60021  
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- Portet, Frédéric See Doukhan, Paul; et al., 85j:60014
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- Puri, Madan L. (with Ralescu, Dan A.) Strong law of large numbers with respect to a set-valued probability measure. 85e:60008
- Račkauskas, A. The law of large numbers in Banach space. (Russian. English and Lithuanian summaries) 85f:60013
- Ralescu, Dan A. See Puri, Madan L., 85e:60008
- Rao, M. Bhaskara See Wang, Xiang Chen, 85k:60013
- Rhee, WanSoo (with Talagrand, Michel) Bad rates of convergence for the central limit theorem in Hilbert space. 85m:60012
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- Wang, Xiang Chen (with Rao, M. Bhaskara) Convergence in the  $p$ th-mean and some weak laws of large numbers for weighted sums of random elements in separable normed linear spaces. 85k:60013
- Yang, Xiao Yun Four theorems about the convergence of weighted sums of random elements. (Chinese. English summary) 85k:60014  
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- Zinn, Joel See Giné, Evarist; et al., 85d:60019; Kuelbs, J., 85e:60007 and Marcus, Michael B., 85g:60016
- Zuparov, T. M. Estimates for the rate of convergence in the central limit theorem for absolutely regular random variables with values in some Banach spaces. (Russian) 85d:60022  
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- Benaï, Albert Théorème central limite de renormalisation pour des processus d'Ornstein-Uhlenbeck généralisés. [Central limit theorem of renormalization for generalised Ornstein-Uhlenbeck processes] 85e:60067
- Bentkus, Vidmantas-Kastytis Jurgio Differentiable functions in spaces  $c_0$  and  $R^k$ . (Russian. English and Lithuanian summaries) 85g:46052  
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- Borogina, A. Weakly uncorrelated random elements. 85i:60007
- Fasiek, István Convergence of vector-valued martingales with multidimensional indices. 85c:60065
- Gut, Allan (with Schmidt, Klaus D.) ★ Amarts and set function processes. 85k:60064
- Hess, Christian Loi de probabilité et indépendance des ensembles aléatoires à valeurs fermées dans un espace de Banach. [Probability law and independence of random sets with closed values in Banach space] 85m:60020
- Kolchinskii, V. I. The central limit theorem in a function space and empirical entropy. (Russian. English summary) 85j:60040
- Lyzambur, K. N. A condition for the convergence of products of random operators. (Russian) 85k:60086
- Mitoma, Itaru Tightness of probabilities on  $C([0, 1]; S^1)$  and  $D([0, 1]; S^1)$ . 85f:60008
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- Rychlik, E. (with Rychlik, Z.) On the rates of convergence in the generalized Anscombe theorem. (Russian and Lithuanian summaries) 85h:60036
- Rychlik, Z. See Rychlik, E., 85h:60036
- Samur, Jorge D. Convergence of sums of mixing triangular arrays of random vectors with stationary rows. 85i:60022
- Schmidt, Klaus D. See Gut, Allan, 85k:60064
- Skorokhod, A. V. Products of independent random operators. (Russian) 85f:60090
- Wang, Xiang Chen Two convergence theorems for weighted sums of random variables. (Chinese. English summary) 85k:60040
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Amarts See Gut, Allan, 85k:60064
- 60B15 Probability measures on groups, Fourier transforms, factorization
- Bougerol, Philippe Exemples de théorèmes locaux sur les groupes résolubles. (English summary) [Examples of local theorems on solvable groups] 85h:60015
- Brihaye, Y. (with Dubois, R.-M.) Convergence de la suite des produits de variables aléatoires indépendantes à valeurs dans un groupe compact. [Convergence of the product sequence of independent random variables with values in a compact group] 85c:60008
- Brogini Bratti, Adriana On characteristic functions and divisibility of weak random variables. (Italian. English summary) 85f:60016
- Byczkowski, T. (with Hulanicki, A.) Gaussian measure of normal subgroups. 85d:60023
- Derriennic, Y. (with Lin, Michael) Sur le comportement asymptotique des puissances de convolution d'une probabilité. (English summary) [Asymptotic behavior of the convolution powers of a probability] 85m:60013
- Dubois, R.-M. See Brihaye, Y., 85c:60008
- Élie, Laure Comportement asymptotique du noyau potentiel sur les groupes de Lie. [Asymptotic behavior of the potential kernel on Lie groups] 85b:60005
- Feldman, G. M. (with Fyrtov, A. E.) On the decomposition of the convolution of a Gaussian and Poisson distribution on locally compact abelian groups. 85b:60006
- Fyrtov, A. E. See Feldman, G. M., 85b:60006
- Gallardo, Léonard Une transformation de Cramér sur le dual de  $SU(2)$ . (English summary) [A Cramér transform on the dual of  $SU(2)$ ] 85h:60016
- Hulanicki, A. See Byczkowski, T., 85d:60023
- Janson, Svante Limit theorems for certain branching random walks on compact groups and homogeneous spaces. 85b:60007
- Kaĭmanovich, V. A. (with Vershik, A. M.) Random walks on discrete groups: boundary and entropy. 85d:60024  
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- Khrustal'eva, M. A. The ergodic property in the integral limit theorem for cases of random motions of a Euclidean space. (Russian) (See 85d:60026)
- Kifer, Yuri (with Slud, Eric V.) Perturbations of random matrix products in a reducible case. 85d:60025
- Lin, Michael See Derriennic, Y., 85m:60013
- Lopez, Artur Oscar Bounded random perturbations of the Liapounov number. 85g:60020
- Picardello, Massimo A. Spherical functions and local limit theorems on free groups. (Italian summary) 85f:60017
- Pincus, Steve A class of Bernoulli random matrices with continuous singular stationary measures. 85j:60016
- Schott, R. Marches aléatoires sur les espaces homogènes. [Random walks on homogeneous spaces] 85j:60017
- Shoeman, S. B. The influence of noncommutativity on limit theorems. 85f:60018
- Siebert, Eberhard Semistable convolution semigroups on measurable and topological groups. (French summary) 85k:60017  
Densities and differentiability properties of Gauss semigroups on a Lie group. 85k:60018
- Slud, Eric V. See Kifer, Yuri, 85d:60025
- Vershik, A. M. See Kaĭmanovich, V. A., 85d:60024
- Vierl, Reinhard Borel semigroups and probabilities. 85k:60019
- Virtser, A. D. On the simplicity of the spectrum of characteristic Lyapunov exponents of the product of random matrices. (Russian. English summary) 85d:60026
- Woess, W. Périodicité de mesures de probabilité sur les groupes topologiques. (English summary) [Periodicity of probability measures on topological groups] 85d:60027  
secondary classifications (60B15)
- Bondeson, Lennart A simple generalization of Poincaré's shuffling theorem. 85f:60096
- Butkovyĭ, D. Correction to the paper: "On the summability of convolution sequences of measures" [Glas. Mat. Ser. III 13(33) (1978), no. 1, 69-74; MR 80d:43001]. 85a:43001
- Fortet, R. Harmonic analysis of random distributions. 85e:60049
- Guivarc'h, Y. (with Le Page, E.; Raugi, A.) On products of random matrices. 85f:60097
- Itô, Masayuki Transient Markov convolution semigroups and the associated negative definite functions. 85e:60078
- Kasteleyn, P. W. Some aspects of random walks on groups. 85j:60129
- Khokhlov, Yu. S. Convergence of the distribution of the shift parameter of the composition of random motions of a Euclidean space to a multidimensional stable law. (Russian) 85e:60028
- Ledrappier, F. Frontière de Poisson pour les groupes discrets de matrices. (English summary) [Poisson boundary of discrete groups of matrices] 85i:60061
- Le Page, E. See Guivarc'h, Y.; et al., 85f:60097



- Oseledets, V. I. Completely positive linear mappings, non-Hamiltonian evolution and quantum stochastic processes. (Russian) **85g:82028**
- Piatucuta, Nicolă. Transition to the simplex case on the discrete torus. (Italian. English summary) **85j:60133**
- Ponomarevko, A. I. Second-order generalized random fields on locally compact groups. (Russian) **85m:60070**
- Rangl, A. See Gulvarc'h, Y.; et al., **85f:60097**
- Schafey, G. J. Homomorphisms of renewal sequences. (See **85g:60005**)
- Takács, Lajos. Random walk on a finite group. **85i:60063**
- Varopoulos, Nicholas Th. Random walks on soluble groups. (French summary) **85c:60078**
- Woess, W. Puissances de convolution sur les groupes libres ayant un nombre quelconque de générateurs. (English summary) [Convolution powers on free groups with an arbitrary number of generators] **85a:60073**

#### 60B99 None of the above, but in this section

- Bertin, Emile M. J. (with Theodorescu, Radu) Hinz spaces and unimodal probability measures. **85c:60009**
- Krutina, M. Group algebras-valued random variables. (See **85g:60005**)
- Rachev, S. T. Minimal metrics in the real random variables space. **85i:60011**
- Saulga, A. On the metrics of the type  $\zeta$ . **85d:60023**
- Theodorescu, Radu. See Bertin, Emile M. J., **85c:60009**

#### secondary classifications (60B99)

- Aldous, David (with Trillas, E.) A metrization theorem for the  $T_F$  topology in a Menger probabilistic metric space. (Spanish. English summary) (See **85g:60026**)
- See also Trillas, E., (**85g:60026**)
- Assouad, Patrice. Sur le lemme de Sauer et un calcul d'entropie. (English summary) [On Sauer's lemma and  $\epsilon$ -entropy] **85h:05005**
- Cox, J. Theodore. An alternate proof of a correlation inequality of Harris. **85f:60028**
- Ehrhard, Antoine. Symétrisation dans l'espace de Gauss. [Symmetrisation in Gaussian spaces] **85f:60058**
- Gutiérrez, M. See Mikhailov, I. D., **85d:15029**
- Jupp, P. E. A Poincaré limit theorem for wrapped probability distributions on compact symmetric spaces. **85k:60044**
- Lin, Xi. A class of probabilistic linear normed spaces and  $\text{ran}^v_n$  operators. (Chinese) (Not in MR)
- Michalek, JIM. SLM-spaces and stochastic processes. (See **85i:60018b**)
- Statistical linear spaces. I. Properties of  $\epsilon, \eta$ -topology. **85i:40010**
- Mikhailov, I. D. (with Gutiérrez, M.) Distribution of the eigenvalues of a Jacobian matrix of infinite order with random diagonal elements. (Spanish. English summary) **85b:15029**
- Mlak, W. Conditionally positive definite functions on linear spaces. **85d:43003**
- Petricor, E. Random Riemannian manifolds. (Romanian summary) **85i:53054**
- Savichev, A. O. The strong law of large numbers for random fields on the Lobachevskii space that are homogeneous in the wide sense. (Russian. English and Lithuanian summaries) (Not in MR)
- Steffler, Miklós. Existence of independent 0-set in random matrices. (Hungarian. English summary) **85d:05006**
- Trillas, E. (with Aldous, David) On left-continuous  $t$ -norms. (Spanish. English summary) (See **85g:60026**)
- See also Aldous, David, (**85g:60026**)
- You, Zhao Yong (with Zhu, Lin Hu) Probabilistic inner product spaces. (Chinese) (Not in MR)
- Zhu, Lin Hu. See You, Zhao Yong, (Not in MR)

#### 60C05 Combinatorial probability

- Ammann, Larry P. Some limit theorems for clustered occupancy models. **85a:60017**
- Cai, Mao Cheng. See Zhang, Zhong Pu; et al., (Not in MR)
- Charalambides, Ch. A. On restricted and pseudocontagious occupancy distributions. **85a:60018**
- (with Chrysaphinou, O. D.) Correction to: "Partition polynomials in fluctuation theory" [Math. Nachr. **106** (1982), 89-100; MR **84g:60016**]. **85j:60018**
- Chrysaphinou, O. D. See Charalambides, Ch. A., **85j:60018**
- Collings, Stanley. Coin sequence probabilities and paradoxes. (Not in MR)
- David, H. A. (with Kinyon, Lawrence C.) The probability that out of  $n$  events at least  $r$  ( $\geq n-2$ ) occur within time span  $t$ . **85h:60017**
- Futatsuya, Masao. See Takahasi, Kōiti, **85m:60018**
- Hald, A. (with Johansen, Søren) On de Moivre's recursion formulae for the duration of play. (French summary) **85c:60010**
- Heidtmann, Klaus D. A priori error estimates for the method of inclusion-exclusion with applications. **85g:60021**
- Janson, Svante. Limit theorems for some sequential occupancy problems. **85b:60009**
- Runs in  $m$ -dependent sequences. **85m:60014**
- Johansen, Søren. See Hald, A., **85c:60010**
- Kanlovskii, Yu. M. ★ Исследование обобщенной задачи об урне методами стохастической аппроксимации. (Russian) [Investigation of the generalized urn problem by stochastic approximation methods] **85a:60019**
- Karbanov, L. I. Limit theorems in a scheme of dependent assignments. (Russian) **85b:60015**
- Kinyon, Lawrence C. See David, H. A., **85h:60017**
- Lin, Yi Xun. See Zhang, Zhong Pu; et al., (Not in MR)
- Mutafchiev, Lyuben R. On some stochastic problems of discrete mathematics. (See **85c:60015**)
- Nabeya, Seiji. See Yamamoto, Eiji; et al., **85k:60020**
- Parthasarathy, K. V. See Vasudevan, R.; et al., **85c:60012**
- Patil, S. A. See Uppuluri, V. R. R., (Not in MR)
- Quine, M. P. A Berry-Esseen bound for scores based on occupancy numbers. **85c:60011**

- Sarkadi, K. A direct proof for a ballot type theorem. **85b:60018**
- Shenton, L. R. A reinforcement depletion urn problem. II. Application and generalization. **85b:60010**
- Shur, Walter. The negative contagion reflection of the Polya-Eggenberger distribution. **85f:60019**
- Stürmer, H. Bemerkungen zu den Sätzen von Jordan. (English summary) [Remarks on Jordan's theorems] **85g:60022**
- Stout, Quentin F. (with Warren, Bette) Tree algorithms for unbiased coin tossing with a biased coin. **85f:60020**
- Takahasi, Kōiti (with Futatsuya, Masao) On a problem of a probability arising from poker. **85m:60018**
- Ukianović, Jovan B. Random selection of mutually exclusive samples. (Not in MR)
- Uppuluri, V. R. R. (with Patil, S. A.) Waiting times and generalized Fibonacci sequences. (Not in MR)
- Vasudevan, R. (with Vittal, P. R.; Parthasarathy, K. V.) Combinants, Bell polynomials and applications. **85c:60012**
- Vittal, P. R. See Vasudevan, R.; et al., **85c:60012**
- Wakimoto, Kazumasa. See Yamamoto, Eiji; et al., **85k:60020**
- Warren, Bette. See Stout, Quentin F., **85f:60020**
- Yamamoto, Eiji (with Wakimoto, Kazumasa; Nabeya, Seiji) Joint moments of the number of  $+$  runs and the number of  $-$  signs in a random sequence. **85k:60020**
- Zhang, Zhong Pu (with Cai, Mao Cheng; Lin, Yi Xun) On the count of runs. (Chinese. English summary) (Not in MR)

#### secondary classifications (60C05)

- Al'pin, Yu. A. See Kochkarev, B. S., **85g:05044**
- Baróti, G. Limit distributions for Ehrenfest's urn model. (See **85g:60005**)
- Bellavista, Luciana Vianelli. On the Stirling numbers of the first kind arising from probabilistic and statistical problems. **85d:05013**
- Berbee, H. C. P. A bound on the size of point clusters of a random walk with stationary increments. **85c:60101**
- Bollobás, Béla (with Klee, Victor) Diameters of random bipartite graphs. **85f:05100**
- The evolution of random graphs. **85k:05090**
- Bolthausen, E. An estimate of the remainder in a combinatorial central limit theorem. **85j:60032**
- Chen, Robert (with Hwang, F. K.) On the values of an  $(m, p)$  urn. **85k:60061**
- Emigh, Ted H. On the number of observed classes from a multinomial distribution. (French summary) **85c:62032**
- Englund, G. Obtaining remainder term estimates by an inversion technique. **85b:60016**
- Erdős, Paul (with Palmer, E. M.; Robinson, R. W.) Local connectivity of a random graph. **85d:05210**
- Georgioli, Costas. See Philippou, Andreas N.; et al., **85c:11019**
- Henderson, W. (with Kennington, R. W.; Pearce, C. E. M.) Stochastic processes and combinatoric identities. **85i:05023**
- Hwang, F. K. An anomaly in knockout tournaments. **85e:05080**
- Selecting most probable events. **85k:62052**
- See also Chen, Robert, **85k:60061**
- Ignatov, Tsvetan. Asymptotic results for an epidemic process on random graphs. **85j:92019**
- Indira, N. K. See Menon, V. V., **85g:60033**
- Jaworski, Jerzy. On some model of a random mapping. **85d:05212**
- On the connectedness of a random bipartite mapping. **85g:05123**
- On a random mapping  $(T, P_1)$ . **85k:05091**
- Juhász, Ferenc. On the asymptotic behaviour of the spectra of nonsymmetric random  $(0, 1)$  matrices. **85b:05125**
- Kalugin, I. B. Branching processes and random mappings of finite sets. (Russian) **85c:60123**
- Kennington, R. W. See Henderson, W.; et al., **85i:05023**
- Klee, Victor. See Bollobás, Béla, **85f:05100**
- Kochkarev, B. S. (with Al'pin, Yu. A.) Some typical properties of Boolean matrices. (Russian) **85g:05044**
- Kuulasmaa, Kari. The product representation of a locally dependent random graph. **85c:05147**
- Meir, A. (with Moon, J. W.) On random mapping patterns. **85g:05125**
- Menon, V. V. (with Indira, N. K.) On the asymptotic normality of the number of replications of a paired comparison. **85g:60033**
- Moon, J. W. See Meir, A., **85g:05125**
- Oxley, James G. Threshold distribution functions for some random representable matroids. **85i:05074**
- Palka, Zbigniew. On the number of vertices of given degree in a random graph. **85i:05191**
- Palmer, E. M. See Erdős, Paul; et al., **85d:05210**
- Pavlov, Yu. L. Limit distributions of the height of a random forest. (Russian. English summary) **85d:05215**
- Pearce, C. E. M. See Henderson, W.; et al., **85i:05023**
- Philippou, Andreas N. (with Georgioli, Costas; Philippou, George N.) Fibonacci polynomials of order  $k$ , multinomial expansions and probability. **85c:11019**
- Philippou, George N. See Philippou, Andreas N.; et al., **85c:11019**
- Pollard, G. H. An analysis of classical and tie-breaker tennis. **85c:62037**
- Quine, M. P. (with Robinson, John) Normal approximations to sums of scores based on occupancy numbers. **85b:60035**
- Rajagopal, A. K. (with Uppuluri, V. R. R.; Scott, David S.; Sitharama Iyengar, S.; Yellayi, Mohan) New structural properties of strings generated by leading digits of  $2^n$ . **85j:11087**
- Robinson, John. See Quine, M. P., **85b:60035**
- Robinson, R. W. See Erdős, Paul; et al., **85d:05210**
- Roushin, A. F. Two statistics in a multinomial scheme. (Russian. English summary) **85c:52044**
- Scott, David S. See Rajagopal, A. K.; et al., **85j:11087**
- Sitharama Iyengar, S. See Rajagopal, A. K.; et al., **85j:11087**

- Stam, A. J. Cycles of random permutations. 85d:05010
- Szekely, G. J. A limit theorem for elementary symmetric polynomials of independent random variables. 85a:60030
- Takács, Lajos Random flights on regular graphs. 85k:60099
- Timofeev, E. A. Random minimal trees. (Russian. English summary) 85h:90071
- Uppuluri, V. R. R. See Rajagopal, A. K.; et al., 85j:11087
- Vietoria, L. Eine Verallgemeinerung der Gleichung  $(n+1)! = n!(n+1)$  und zugehörige vermutete Ungleichungen. (English summary) [A generalization of the equation  $(n+1)! = n!(n+1)$  and some related conjectured inequalities] 85m:05009
- Yellayi, Mohan See Rajagopal, A. K.; et al., 85j:11087

# 60D05 Geometric probability, stochastic geometry, random sets [See also 52A22, 53C85.]

- Ambartsumyan, R. V. Stereology of random planar segment processes. 85b:60011
- Aristein, Zvi Distributions of random sets and random selections. 85m:60017
- Buchta, Christian Zufallspolygone in konvexen Vielecken. [Random polygons in convex polygons] 85e:60009
- Stochastische Approximation konvexer Polygone. (English summary) [Stochastic approximation of convex polygons] 85k:60021
- Chen, Robert (with Goodman, Richard; Zame, Alan) Limiting distributions of two random sequences. 85g:60023
- Coleman, Rodney The sizes of spheres from profiles in a thin slice. II. Transparent spheres. (German summary) 85k:60022
- Davy, Pamela J. Probability models for liberation. 85f:60021
- Gates, John Bounds for the probability of complete intersection of random chords in a circle. 85h:60019
- A note on the volume of small random simplexes. 85m:60018
- Goodman, Richard See Chen, Robert; et al., 85g:60023
- Hanisch, K.-H. ★ On Palm and second-order quantities of point processes and germ-grain-models. 85k:60023
- Hermann, Helmut Correlation functions of heterogeneous materials with substructure. (German and Russian summaries) 85m:60019
- Hess, Christian Loi de probabilité et indépendance des ensembles aléatoires à valeurs fermées dans un espace de Banach. [Probability law and independence of random sets with closed values in Banach space] 85m:60020
- Holst, L. A note on random arcs on the circle. 85j:60020
- (with Hüner, J.) On the random coverage of the circle. 85j:60019
- Hüner, J. See Holst, L., 85j:60019
- Janson, Svante Random coverings of the circle with arcs of random lengths. 85j:60021
- Kanastani, Ken-ichi Stereological determination of structural anisotropy. 85m:60021
- Lyashenko, N. N. Geometric convergence of random processes and the statistics of random sets. (Russian) 85i:60012
- Mathai, A. M. (with Tracy, Derrick S.) On a random convex hull in an n-ball. 85c:60013
- Mecke, Joseph See Stoyan, Dietrich, 85m:60024
- Molchanov, I. É. A generalization of the Choquet theorem for random sets with a given class of realizations. (Russian) 85g:60024
- Marked random sets. (Russian) 85m:60022
- Nagel, W. Dünne Schnitte von stationären räumlichen Faserprozessen. (English and Russian summaries) [Thin sections of stationary spatial fiber processes] 85c:60014
- Newman, C. M. (with Rinott, Yosef; Tversky, Amos) Nearest neighbors and Voronoi regions in certain point processes. 85m:60023
- Norberg, Tommy Convergence and existence of random set distributions. 85j:60022
- Rinott, Yosef See Newman, C. M.; et al., 85m:60023
- Samuel-Cahn, E. Simple approximations to the expected waiting time for a cluster of any given size, for point processes. 85b:60012
- Small, Christopher G. A classification theorem for planar distributions based on the shape statistics of independent tetrads. 85j:60023
- Stoyan, Dietrich Stereological formulae for size distributions via marked point processes. 85b:60013
- (with Mecke, Joseph) ★ Stochastische Geometrie. (German) [Stochastic geometry] 85m:60024
- Stute, Winfried Random approximation of smooth curves. 85j:60024
- Tracy, Derrick S. See Mathai, A. M., 85c:60013
- Tversky, Amos See Newman, C. M.; et al., 85m:60023
- Watson, G. S. Limit theorems on high-dimensional spheres and Stiefel manifolds. 85k:60024
- Yadin, Micha See Zacks, S., (85m:62005)
- Zacks, S. (with Yadin, Micha) The distribution of the random lighted portion of a curve in a plane shadowed by a Poisson random field of obstacles. (See 85m:62005)
- Zähle, U. Statistical self-similarity and Hausdorff-Besicovitch dimension in stochastic geometry. 85j:60025
- Zame, Alan See Chen, Robert; et al., 85g:60023

## secondary classifications (60D05)

- Buchta, Christian Über die konvexe Hülle von Zufallspunkten in Eibereichen. [On the convex hull of random points in convex bodies] 85e:52006
- Cirilione, Leonardo On a family of varieties not satisfying Stoka's measurability condition. (French summary) 85f:53059
- Cox, Trevor F. Nearest neighbours to nearest neighbours. 85a:60055
- Dixon, John D. How good is Hadamard's inequality for determinants? 85e:15009
- Drouffe, Jean-Michel (with Itzykson, Claude) Random geometry and the statistics of two-dimensional cells. 85c:82043
- Giné, Evarist (with Hahn, Marjorie G.; Zinn, Joel) Limit theorems for random sets: an application of probability in Banach space results. 85d:60019
- Hahn, Marjorie G. See Giné, Evarist; et al., 85d:60019
- Itzykson, Claude See Drouffe, Jean-Michel, 85c:82043
- Jupp, P. E. A Poincaré limit theorem for wrapped probability distributions on compact symmetric spaces. 85k:60044

- (Maksimov, V. M.) See Santaló, Luis Antonio, 85a:53057
- Mathai, A. M. Exact densities of the random r-contents of beta distributed random points in an n-ball. 85h:62014
- Santaló, Giacomo Integral geometry. (Italian) 85a:53114
- Santaló, Luis Antonio ★ Интергральная геометрия и геометрические вероятности. (Russian) [Integral geometry and geometric probability] 85a:53057
- Schneider, Rolf (with Weil, Wolfgang) Zonoids and related topics. 85c:52010
- Stoyan, Dietrich Inequalities and bounds for variances of point processes and fibre processes. (German and Russian summaries) 85h:60075
- Thomas, C. Extremum properties of the intersection densities of stationary Poisson hyperplane processes. (German and Russian summaries) 85j:60061
- Weil, Wolfgang Stereology: a survey for geometers. 85e:52007
- See also Schneider, Rolf, 85c:52010
- Zähle, M. ★ Curvature measures and random sets. I. 85e:53093
- Zinn, Joel See Giné, Evarist; et al., 85d:60019

# 60Exx Distribution theory [See also 62Exx, 62Hxx.]

## 60E05 Distributions: general theory

- Aboummoh, A. M. (with Mashhour, A. F.) On some closure properties of unimodal discrete distributions. (Arabic summary) 85i:60013
- Ahsanullah, M. See Basu, A. K., 85f:60022
- Andri, J. Dependent random variables with a given marginal distribution. (Russian and Czech summaries) 85b:60014
- Artikis, Theodore Convex densities and self-decomposability. 85h:60020
- Aslarov, T. A. (with Volodin, N. A.) Two estimates of the closeness of distributions with monotone failure rates to an exponential distribution. (Russian) 85e:60010
- Bai, Zhi Dong (with Su, Chun; Fang, Kai Tai; Chen, Pei De) A problem on the independence of random variables. (Chinese) (Not in MR)
- A negative answer to a question of Linnik and Ostrovski's. 85e:60011
- Bartholomew, D. J. The mixed exponential distribution. 85e:60012
- Basu, A. K. (with Ahsanullah, M.) On decomposition of normal and Poisson law. 85f:60022
- Bertin, Emile M. J. (with Theodorescu, Radu) Propriétés de quasi-concavité des fonctions de répartition unimodales. (English summary) [Quasiconcavity properties of unimodal distribution functions] 85h:60021
- Bingham, N. H. On a theorem of Klossowski about generalised convolutions. 85m:60025
- Blank, N. M. Distributions whose convolutions are identical on the half line. (Russian. English summary) 85c:60015
- Chen, Pei De See Bai, Zhi Dong; et al., (Not in MR)
- Chen, Yong Yi A problem on independence of integer-valued random variables. (Chinese. English summary) 85h:60022
- Chibrikova, E. D. An asymptotic expansion for the density of the absolute value of a semistable random vector in a finite-dimensional space. (Russian) 85j:60026
- (Deshpande, J. V.) See Sathe, Y. S., 85j:60028
- Embrechts, Paul (with Omey, E.) A property of longtailed distributions. 85i:60014
- Fang, Kai Tai See Bai, Zhi Dong; et al., (Not in MR)
- Feigin, Paul D. (with Yashchin, Emmanuel) On a strong Tauberian result. 85d:60029
- Gopala Krishna, J. (with Subrahmanyam, K. H. S.) Study of multidimensional distributions and processes associated with multiple Dirichlet series and applications. 85f:60023
- Gyires, B. Contributions to the theory of linear combinations of probability distribution functions. 85h:60023
- On the superponability of strictly monotone increasing continuous probability distribution functions. (See 85g:60005)
- Henna, Jörg Identifiability of countable mixtures. 85m:60026
- Jog-Dev, Kumar Independence via uncorrelatedness under certain dependence structures. 85c:60016
- Kellson, J. (with Sumita, Ushio) A decomposition of the beta distribution, related order and asymptotic behavior. 85i:60015
- (Kocher, S. C.) See Sathe, Y. S., 85j:60028
- Laue, Gabriele Existence and representation of density functions. 85j:60027
- Mallows, C. L. A new system of frequency curves. 85c:60013
- Mammitzsch, V. Is the distribution function of  $f(X+Y) - X$  continuous, if  $X$  and  $Y$  are independent and have continuous distribution functions? 85f:60024a
- See also Székely, G. J., 85f:60024b
- Mashhour, A. F. See Aboummoh, A. M., 85i:60013
- Omey, E. See Embrechts, Paul, 85i:60014
- Sathe, Y. S. A comment on star-ordering and tail-ordering: "Dispersive ordering is the same as tail-ordering" [Adv. in Appl. Probab. 15 (1983), no. 3, 686-687; MR 84i:60020] by J. V. Deshpande and S. C. Kocher. 85j:60028
- Sempi, Carlo On the space of distribution functions. (Italian summary) 85g:60025
- Stadje, W. On the theory of rotationally symmetric random vectors. 85k:60025
- Su, Chun See Bai, Zhi Dong; et al., (Not in MR)
- Subrahmanyam, K. H. S. See Gopala Krishna, J., 85f:60023
- Sumita, Ushio See Kellson, J., 85i:60015
- Szekely, G. J. On the paper: "Is the distribution function of  $f(X+Y) - X$  continuous, if  $X$  and  $Y$  are independent and have continuous distribution functions?" [same collection, 589-596; MR 85f:60024a] by V. Mammitzsch. 85f:60024b
- Theodorescu, Radu See Bertin, Emile M. J., 85h:60021
- Uhrin, B. Convolution of multidimensional unimodal functions. 85j:60029
- Volodin, N. A. See Aslarov, T. A., 85e:60010
- Yashchin, Emmanuel See Feigin, Paul D., 85d:60029
- Zempleni, A. On irreducible measures. (See 85g:60005)

## secondary classifications (60E05)

- Alamatsaz, M. H. Completeness and self-decomposability of mixtures. 85m:62023
- Baras, J. S. See Ocone, Daniel; et al., 85m:93042

- Blank, N. M. Distributions whose convolutions coincide on the half axis. (Russian) 85m:60029
- Brown, Gavin (with Williamson, John Hunter) Rearranging measures. 85e:28009
- Cambanis, Stamatis Complex symmetric stable variables and processes. 85f:60054
- Deheuvels, Paul The characterisation of distributions by order statistics and record values—a unified approach. 85j:62009
- Embrechts, Paul The asymptotic behaviour of series and power series with positive coefficients. 85e:60001
- Galambos, Janos The role of functional equations in stochastic model building. 85g:62028
- Januškevičienė, O. See Januškevičius, R. 85d:62014 and 85k:62033
- Januškevičius, R. (with Januškevičienė, O.) The method of multiple transformations in stability theory. (Russian) 85k:62033  
(with Januškevičienė, O.) Limit theorems in the problems of stability. 85d:62014  
See also Klebanov, L. B. 85e:62019
- Khatiri, C. G. Multivariate exponential discrete distributions and their characterization by the Rao-Rubin condition for the additive damage model. 85e:62094
- Khokhlov, Yu. S. On stability estimation of certain characterization of the exponential distribution. 85d:62015
- Klebanov, L. B. (with Januškevičius, R.) The estimates of stability for a theorem on the characterization by means of the identical distribution property. 85e:62019
- Kunte, S. (with Rattihalli, R. N.) Rectangular regions of maximum probability content. 85j:62011
- Marcus, Steven I. See Ocone, Daniel; et al. 85m:93042
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Ramakrishnan, S. The tail  $\sigma$ -field of a finitely additive Markov chain starting from a recurrent state. 85a:60039

Rihaoui, I. Deux types de loi zéro-un pour une probabilité gaussienne. [Two types of zero-one laws for a Gaussian probability] 85k:60048

Spokoinyi, V. G. Estimates of the Baum-Katz type for sums of dependent random variables. (Russian) 85c:60041

Sudderth, William D. See Purves, Roger A., 85j:60057

#### secondary classifications (60F20)

Csik, E. On the standardized empirical distribution function. 85d:60061

De Dominicis, Rodolfo Asymptotic properties of a class of Markov chains having a compact state space. 85m:60117

Klass, Michael J. The minimal growth rate of partial maxima. 85b:60028

#### 60F25 $L^p$ -limit theorems

G84se, Friedhelm Expansions for von Mises functionals. 85m:60064

Meredov, B. Two-sided estimates in a limit theorem. (Russian) 85g:60045

#### secondary classifications (60F25)

Bryc, W. On almost sure convergence and integrability of sums of weakly dependent random vectors. 85d:60018

Cohn, Harry (with Hall, Peter) On the limit behaviour of weighted sums of random variables. 85g:60029

Hall, Peter See Cohn, Harry, 85g:60029

Kuritsyn, Yu. G. Monotonicity in the law of large numbers for exchangeable random variables. (Russian. English summary) 85g:60039

#### 60F99 None of the above, but in this section

Babanin, A. S. A generalization of the arctangent law. (Russian) 85d:60072

Girko, V. L. (with Onsha, Yu. M.) The method of spectral functions in the theory of experimental design. (Russian. English summary) 85a:60040

Gomes, M. Ivette Penultimate limiting forms in extreme value theory. 85m:60065

Grübel, R. Functions of discrete probability measures: rates of convergence in the renewal theorem. 85c:60048

Hall, Peter Order of magnitude of the concentration function. 85c:60049

Heinrich, Lothar Some estimates of the concentration function of sums of  $m$ -dependent and Markov-dependent random variables. 85k:60049

Lyashenko, N. N. Weak convergence of step processes in a space of closed sets. (Russian. English summary) 85j:60058

Miyakoshi, Masaaki (with Shimbo, Masaru) A strong law of large numbers for fuzzy random variables. 85d:60073

Onsha, Yu. M. See Girko, V. L., 85a:60040

Schatte, Peter Über mantissenverteilungen. (English, French and Russian summaries) [On the distribution of mantissas] (Not in MR)

Shimbo, Masaru See Miyakoshi, Masaaki, 85d:60073

Statulevicius, V. On a condition for almost Markov regularity. (Russian. English summary) 85c:60050

#### secondary classifications (60F99)

Aslarov, T. A. (with Volodin, N. A.) Two estimates of the closeness of distributions with monotone failure rates to an exponential distribution. (Russian) 85c:60010

Basu, Sujit K. (with Bhattacharjee, Manish C.) On weak convergence within the HNBUE family of life distributions. 85m:62208

Bhattacharjee, Manish C. See Basu, Sujit K., 85m:62208

Carmeli, M. ★Statistical theory and random matrices. 85c:82001

Davies, P. L. (with Grübel, R.) A smoothness property of renewal sequences. 85c:60139

Girko, V. L. The circle law. (Russian) 85m:60115

Grenkova, L. N. (with Molchanov, S. A.; Sudarev, Yu. N.) On the basic states of one-dimensional disordered structures. 85b:82058

Grübel, R. See Davies, P. L., 85c:60139

Janson, Svante Runs in  $m$ -dependent sequences. 85m:60014

Mitoma, Itaru Almost sure uniform convergence of continuous stochastic processes with values in the dual of a nuclear space. 85h:60013

Molchanov, S. A. See Grenkova, L. N.; et al., 85b:82058

Pfeifer, D. Probabilistic representations of operator semigroups—a unifying approach. 85m:47042

Proshan, Frank (with Shaked, Moshe) Random averaging of vector elements. 85h:60103

Schatte, Peter The  $M/G/1$  queue as limit of closed queueing systems. (German and Russian summaries) 85f:60146

Shaked, Moshe See Proshan, Frank, 85h:60103

Shoeman, S. B. The influence of noncommutativity on limit theorems. 85f:60018

Sudarev, Yu. N. See Grenkova, L. N.; et al., 85b:82058

Volodin, N. A. See Aslarov, T. A., 85c:60010

#### 60Gxx Stochastic processes

##### secondary classifications (60Gxx)

Dellacherie, C. (with Meyer, Paul-André) ★Probabilities and potential. B. 85e:60001

Meyer, Paul-André See Dellacherie, C., 85e:60001

(Wilson, J. P.) See Dellacherie, C., 85e:60001

#### 60G05 Foundations of stochastic processes

Itô, Kiyosi (with Nawata, Masako) Regularization of linear random functionals. 85h:60053

Nawata, Masako See Itô, Kiyosi, 85h:60053

Zähle, U. Measurable processes and approximate limits. 85h:60054

Zbăganu, G. Orthogonality of two  $L^\infty$ -type spaces and study of some two-parameter filtrations. (Romanian. English summary) 85k:60050

##### secondary classifications (60G05)

Jollivet, É. Étude de la vraisemblance d'un processus de Gauss-Poisson et deux applications. (English summary) [Study of the likelihood of a Gauss-Poisson process, and two applications] 85c:60071

Klots, Lutz Peter Interpolierbarkeitskriterien für  $q$ -dimensionale homogene verallgemeinerte Felder. [Interpolability criteria for  $q$ -dimensional homogeneous generalized fields] 85f:60062

Lyashenko, N. N. Weak convergence of step processes in a space of closed sets. (Russian. English summary) 85j:60058

Statulevicius, V. On a condition for almost Markov regularity. (Russian. English summary) 85c:60050

## 60G07 General theory of processes

Mersbach, Ely Chemins croissants optionnels et théorème de section. (English summary) [Optional increasing paths and section theorem] 85j:60059

secondary classifications (60G07)

Armstrong, Thomas E. Finitely additive  $F$ -processes. 85a:60052

Bass, Richard Occupation times of  $d$ -dimensional semimartingales. 85j:60080

Dellacherie, C. (with Lengart, E.) Sur des problèmes de régularisation, de recollement et d'interpolation en théorie des processus. [On problems of regularization, gluing, and interpolation in the theory of processes] 85i:60045

Itô, Kiyosi (with Nawata, Masako) Regularization of linear random functionals. 85h:60053

Lengart, E. See Dellacherie, C., 85i:60045

Nawata, Masako See Itô, Kiyosi, 85h:60053

## 60G09 Exchangeability

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Barbour, A. D. (with Eagleson, G. K.) Poisson approximation for some statistics based on exchangeable trials. 85c:60021

Dubins, Lester E. Some exchangeable probabilities are singular with respect to all presentable probabilities. 85c:60001

Eagleson, G. K. See Barbour, A. D., 85c:60021

## 60G10 Stationary processes

Arnold, Ludwig (with Whistutz, V.) Wide sense stationary solutions of linear systems with additive noise. 85b:60031

Berman, Simeon M. Sojourns of stationary processes in rare sets. 85d:60074

Limiting distribution of sums of nonnegative stationary random variables. 85m:60056

Sojourns of vector Gaussian processes inside and outside spheres. 85m:60067

Bradley, Richard C. Some mixing properties of Tukey's 3R smoother. 85h:60055

Cheng, Shi Hong On high level occupation times for some stationary processes. (Chinese. English summary) 85j:60060

Falk, M. On the convergence of spectral densities of arrays of weakly stationary processes. 85h:60056

Fortet, R. Remarques sur les suites, en particulier autoregressives, de vecteurs aléatoires du second ordre. [Remarks on second-order sequences, especially autoregressive sequences, of random vectors] 85b:60033

Kawata, Tatsuo On a theorem on quasianalyticity of a weakly stationary process. 85i:60051

Keller, Gerhard Stochastic stability of some one-dimensional dynamical systems. 85c:60053

Leadbetter, M. R. Extremes and local dependence in stationary sequences. 85b:60033

Major, Péter On renormalizing Gaussian fields. 85g:60046

Naas, Arvid The effect of the Markov chain condition on the prediction of extreme values. 85m:60068

Pogán, Tibor On the rank of a multidimensional random process with stationary coordinates. (Serbo-Croatian. German summary) 85c:60051

Sato, Ken-Iti (with Yamazato, Makoto) Stationary processes of Ornstein-Uhlenbeck type. 85h:60057

Soltani, A. Reza Extrapolation and moving average representation for stationary random fields and Beurling's theorem. 85c:60042

Thomas, C. Extremum properties of the intersection densities of stationary Poisson hyperplane processes. (German and Russian summaries) 85j:60061

Whistutz, V. See Arnold, Ludwig, 85b:60031

Xie, Sheng Rong The  $r$ th largest values in stationary sequences. (Chinese) 85m:60069

Yamazato, Makoto See Sato, Ken-Iti, 85h:60057

Zaman, Arif Stationarity on finite strings and shift register sequences. 85h:60058

secondary classifications (60G10)

Akroglu, M. A. (with Sucheston, L.) A stochastic ergodic theorem for superadditive processes. 85j:28025

An, Hong Zhi (with Chen, Zhao Guo; Hannan, E. J.) The maximum of the periodogram. 85c:60033

Andel, J. (with Netuka, Ivan; Zvíra, Karel) On threshold autoregressive processes. 85h:62113

Anisimov, V. V. (with Chernyak, A. I.) Some limit theorems for stationary sequences and Markov chains. (Russian. English summary) 85c:60021

Berbee, H. C. P. A bound on the size of point clusters of a random walk with stationary increments. 85c:60181

Bloomfield, Peter (with Jewell, Nicholas P.; Hayaishi, Eric) Characterizations of completely nondeterministic stochastic processes. 85g:60053

Chen, Zhao Guo See An, Hong Zhi; et al., 85c:60033

Chernyak, A. I. See Anisimov, V. V., 85c:60021

Cogburn, Robert The ergodic theory of Markov chains in random environments. 85h:60100

Dehling, Herold (with Denker, Manfred; Philipp, Walter) Versik processes and very weak Bernoulli processes with summable rates are independent. 85i:28005

Denker, Manfred (with Keller, Gerhard) On  $U$ -statistics and v. Mises' statistics for weakly dependent processes. 85c:60044

See also Dehling, Herold; et al., 85i:28005

Eberlein, Ernst Strong approximation of very weak Bernoulli processes. 85c:60039

Föllmer, Rolf Ergodic theorems for general open systems and their applications in queueing theory. (German and Russian summaries) 85i:60156

Gorodetskiĭ, V. V. The rate of convergence in the invariance principle for strongly mixing sequences. (Russian. English summary) 85c:60039

Guivarc'h, Y. (with Le Page, E.; Raugi, A.) On products of random matrices. 85f:60097

Gylys, R. Conditions for the regularity of stationary random processes. (Russian. English and Lithuanian summaries) 85c:60051

Hannan, E. J. Limit theorems for autocorrelations and Fourier coefficients. (See 85g:60003)

See also An, Hong Zhi; et al., 85c:60033

Hayaishi, Eric See Bloomfield, Peter; et al., 85g:60053

Jewell, Nicholas P. See Bloomfield, Peter; et al., 85g:60053

Kallianpur, G. (with Mandrekar, V.) Nondeterministic random fields and Wold and Halmos decompositions for commuting isometries. 85c:60078

Kanagawa, Shōya Convergence rates in Erdős-Kac type invariance principle for some stationary sequences. 85i:60033

Keh Shin Lil (with Rosenblatt, Murray) Non-Gaussian linear processes, phase and deconvolution. (See 85m:62005)

Keller, Gerhard See Denker, Manfred, 85c:60044

Kleffer, John C. On obtaining a stationary process isomorphic to a given process with a desired distribution. 85f:28022

A simple development of the Thouvenot relative isomorphism theory. 85g:28025

Krengel, Ulrich (with Röttger, R.; Wacker, U.) A renewal type mean ergodic theorem. 85c:60029

Le Page, E. See Guivarc'h, Y.; et al., 85f:60097

Lin, Zheng Yan (with Lu, Chuan Rong) Some new results on weak invariance principle. (Chinese summary) 85b:60030

Lu, Chuan Rong See Lin, Zheng Yan, 85b:60030

Mandrekar, V. See Kallianpur, G., 85c:60078

Morettin, Pedro A. A note on a central limit theorem for stationary processes. 85c:60031

Nagel, W. Dünne Schnitte von stationären räumlichen Faserprozessen. (English and Russian summaries) [Thin sections of stationary spatial fiber processes] 85c:60014

Netuka, Ivan See Andel, J.; et al., 85h:62113

Neveu, J. Courte démonstration du théorème ergodique sur-additif. (English summary) [Short proof of the superadditive ergodic theorem] 85f:28023

O'Brien, George L. Obtaining prescribed rates of convergence for the ergodic theorem. 85j:28017

Ortega, Joaquín (with Wachebor, Mario) On the sequence of partial maxima of some random sequences. 85b:60039

Peller, V. V. Description of Hankel operators of the class  $\mathcal{S}_p$  for  $p > 1$ , investigation of the rate of rational approximation and other applications. (Russian) 85g:47041

Philipp, Walter See Dehling, Herold; et al., 85i:28005

Portal, Frédéric Principe d'invariance faible avec vitesse pour un processus empirique dans un cadre multidimensionnel et fortement mélangeant. (English summary) [Weak invariance principle with rate for an empirical process in a multidimensional and strongly mixing framework] 85d:60071

Pötscher, B. M. Corrections: "Order estimation in ARMA-models by Lagrangian multiplier tests" [Ann. Statist. 11 (1983), no. 3, 872-885; MR 84i:62121]. 85c:62185

Raugi, A. See Guivarc'h, Y.; et al., 85f:60097

Rosenblatt, Murray See Keh Shin Lil, (85m:62005)

Röttger, R. See Krengel, Ulrich; et al., 85c:60029

Sucheston, L. See Akroglu, M. A., 85j:28025

Suclu, I. (with Valuşescu, Ilie) Linear predictor for stationary processes in complete correlated actions. 85i:60043

Tikhomirov, A. N. Normal approximation of sums of vector-valued mixing random fields. (Russian) 85j:60094

Truong-Van, B. Autoreproducing kernel moduli of spectral measures and Hellinger integrals—applications to stationary processes. 85d:60082

Turkman, K. F. (with Walker, A. Morris) Limit laws for the maxima of a class of quasistationary sequences. 85b:60075

Valuşescu, Ilie See Suclu, I., 85i:60043

Wacker, U. See Krengel, Ulrich; et al., 85c:60029

Walker, A. Morris See Turkman, K. F., 85b:60075

Wachebor, Mario See Ortega, Joaquín, 85b:60039

Zabczyński, Jerzy Stationary distribution for linear equations driven by general noise. (Russian summary) 85f:60084

Zvíra, Karel See Andel, J.; et al., 85h:62113

## 60G12 General second-order processes

Abreu, José Luis (with Fetter, Helga) The shift operator of a nonstationary sequence in Hilbert space. 85k:60052

Cambanis, Stamatis Complex symmetric stable variables and processes. 85f:60054

Carbon, Michel Inégalité de Bernstein pour les processus fortement mélangés, non nécessairement stationnaires. Applications. (English summary) [Bernstein inequality for strong mixing, nonstationary processes. Applications] 85d:60075

Chang, Derek K. (with Rao, M. M.) Bimeasures and sampling theorems for weakly harmonizable processes. 85f:60055

Chobanyan, S. A. (with Vakhanjya, N. N.) The linear prediction and approximation of weak second order random elements. 85b:60034

Dragan, Ya. P. Harmonizability of random processes with finite energy. (Russian) 85f:60058

Fetter, Helga See Abreu, José Luis, 85k:60052

Fortet, R. Vecteurs et fonctions aléatoires à valeurs dans un espace de Hilbert séparable. [Random vectors and functions with values in a separable Hilbert space] 85h:60059

Honda, Ikujō On the Fourier series and some sample properties of periodic stochastic processes. 85b:60035

Ivković, Zoran On spectral type of nonlinear and nonanticipative transformation of the Wiener process. (Serbo-Croatian summary) 85j:60063

Ponomarenko, A. I. Second-order generalized random fields on locally compact groups. (Russian) 85m:60070

Rao, M. M. Harmonizable processes: structure theory. 85c:60052

The spectral domain of multivariate harmonizable processes. 85k:60053



See also Chang, Derek K., 85f:60055

Vakhanlyan, N. N. See Chobanyan, S. A., 85b:60034

Valugescu, Ilie Continuous stationary processes in complete correlated actions. 85h:60060

secondary classifications (60G12)

Fortet, R. Remarques sur les suites, en particulier autoregressives, de vecteurs aléatoires du second ordre. [Remarks on second-order sequences, especially autoregressive sequences, of random vectors] 85b:60032

Ponomarenko, A. I. Regularity of generalized random fields on locally compact groups. (Ukrainian. Russian summary) 85h:60076

Varga, László On the error-minimizing property of the Karhunen-Löve expansion. 85j:68095

## 60G15 Gaussian processes

Abraham, Julia Ramp crossings for Slepian's process. 85k:60054

On Miroshin's second-order reciprocal processes. 85k:60055

Benassi, Albert Théorème de traces stochastiques et fonctionnelles multiplicatives pour des champs gaussiens markoviens d'ordre  $p$ . [Stochastic trace theorem and multiplicative functionals for Markov Gaussian fields of order  $p$ ] 85f:60057

Berman, Simeon M. Correction: "Sojourns and extremes of Gaussian processes" [Ann. Probab. 2 (1974), 999-1026; MR 51 #9178]. 85b:60036

Boccotti, Paolo On the highest waves in a stationary Gaussian process. (Italian summary) 85g:60047

Buldigin, V. V. (with Soltsev, S. A.) Asymptotic behavior of a Gaussian-Markov sequence. (Russian) 85b:60037

Cabaña, E. M. On the transition density of a multidimensional parameter Wiener process with one barrier. 85f:60036

Ehrhard, Antoine Un principe de symétrisation dans les espaces de Gauss. [A symmetrization principle in Gaussian spaces] 85j:60063

Symétrisation dans l'espace de Gauss. [Symmetrization in Gaussian spaces] 85f:60058

Ėshkaraev, Ch. Description of a conditional distribution for a three-dimensional Molchan-Nelson field. (Russian) 85g:60048

Fatalov, V. R. Exact asymptotic behavior of the distribution function of the maximum of an inhomogeneous Gaussian random field. (Russian. Armenian summary) 85g:60049

Fernique, Xavier Comparaison de mesures gaussiennes et de mesures produit. (English summary) [Comparison of Gaussian measures and product measures] 85i:60037

Gallavotti, G. Elliptic operators and Gaussian processes. 85h:60061

Geman, Donald (with Horowitz, Joseph; Rosen, Jay) A local time analysis of intersections of Brownian paths in the plane. 85m:60071

Horowitz, Joseph See Geman, Donald; et al., 85m:60071

Ivković, Zoran (with Lozanov, Zagorka) On Hermite polynomials of the Gaussian random process. (Serbo-Croatian summary) 85j:60064

Johnson, B. McK. (with Killeen, T.) An explicit formula for the C.D.F. of the  $L_1$  norm of the Brownian bridge. 85b:60038

Khadzhiiev, Dimit'r I. An example of efficient filtering and extrapolation. (Russian) 85e:60043

Killeen, T. See Johnson, B. McK., 85b:60038

Kôno, Norio Iterated log type strong limit theorems for self-similar processes. 85a:60041

Kosachenko, Yu. V. Conditions for uniform convergence of Gaussian and near-Gaussian trigonometric series in the Luxemburg norm. (Russian) 85g:60050

Logan, B. F. (with Maso, J. E.; Odlyzko, A. M.; Shepp, L. A.) On the average product of Gauss-Markov variables. 85m:60072

Lozanov, Zagorka See Ivković, Zoran, 85j:60064

Makhno, S. Ya. Conditional Gaussian property of random fields. (Russian) 85f:60059

Matsak, I. K. Estimates of moments of the number of intersections of a strip by a Gaussian random process. (Russian) 85m:60073

Mazo, J. E. See Logan, B. F.; et al., 85m:60072

Ni, Zhong Ren The germ space of a multidimensional stationary process. (Chinese. English summary) 85d:60076

Odlyzko, A. M. See Logan, B. F.; et al., 85m:60072

Okabe, Yasunori On a stochastic differential equation for a stationary Gaussian process with  $T$ -positivity and the fluctuation-dissipation theorem. 85f:60060

Ortega, Joaquín (with Wschebor, Mario) On the sequence of partial maxima of some random sequences. 85b:60039

Piterbarg, V. I. Asymptotic behavior of the probability of a large excursion for a nonstationary Gaussian process. (Russian) 85j:60065

Plucińska, Agnieszka A characterization of a Gaussian process through the independence of some linear functions. 85j:60066

On a stochastic process determined by the conditional expectation and the conditional variance. 85a:60042

Pyke, Ronald The Haar-function construction of Brownian motion indexed by sets. 85i:60038

Ricciardi, Luigi M. (with Sato, Shunsuke) A note on first passage time problems for Gaussian processes and varying boundaries. 85c:60053

Rihaoui, I. Continuité et différentiabilité des translations dans un espace gaussien. [Continuity and differentiability of translations in a Gaussian space] 85e:60044

Rosen, Jay See Geman, Donald; et al., 85m:60071

Sato, Shunsuke See Ricciardi, Luigi M., 85c:60053

Shepp, L. A. See Logan, B. F.; et al., 85m:60072

Soltsev, S. A. Dense oscillation of a Gaussian Markov sequence. (Russian) 85d:60077

See also Buldigin, V. V., 85b:60037

Stricker, C. Semimartingales gaussiennes—application au problème de l'innovation. (English summary) [Gaussian semimartingales—application to the innovation problem] 85c:60054

Su, Ming Li A limit theorem for the maximum term in nonstationary Gaussian sequences. (Chinese) (Not in MR)

Asymptotic properties of the maximum of a nonstationary Gaussian process. (Chinese. English summary) 85e:60045

Weber, Michel Sur le comportement asymptotique des processus gaussiens stationnaires. [On the asymptotic behavior of stationary Gaussian processes] 85d:60078

Polar sets of some Gaussian processes. 85b:60040

Wong, H. S. F. Classes inférieures de suites gaussiennes asymptotiquement indépendantes. (English summary) [Lower classes of asymptotically independent Gaussian sequences] 85m:60074

Wschebor, Mario See Ortega, Joaquín, 85b:60039

Yadrenko, O. M. Some properties of Gaussian and sub-Gaussian sequences. (Russian. English summary) 85e:60046

Yang, Ya Li Some results on the 0-1 law for ergodic quasi-invariant measures. (Chinese) (Not in MR)

secondary classifications (60G15)

d'Alessandro, P. (with Germani, A.; Piccioni, M.) Relationships between measures induced by Itô and white noise linear equations. 85m:60077

Antoniadis, A. Analysis of variance on function spaces. (French and German summaries) 85h:62111

Berman, Simeon M. Sojourns of vector Gaussian processes inside and outside spheres. 85m:60067

Besson, Jean-Luc (with Wschebor, Mario) Sur la finitude des moments du nombre de passages par un niveau d'une fonction aléatoire. (English summary) [On the finiteness of the moments of the number of level crossings of a random function] 85c:60055

Breuer, Péter (with Major, Péter) Central limit theorems for nonlinear functionals of Gaussian fields. 85d:60042

Chevet, Simone Sur les fonctions aléatoires de Itô-Wick et les intégrales multiples. (English summary) [On random Itô-Wick functions and multiple integrals] 85h:60081

Gaussian measures and large deviations. 85d:60013

Devil, J.-C. Qualitative harmonic analysis: an application to Brownian motion. (See 85m:62001)

Dobrushin, R. L. (with Kel'bert, M. Ya.) Stationary local additive functionals of Gaussian random fields. (Russian. English summary) 85c:60075

Ehrhard, Antoine Lois stables et propriété de Slepian. [Stable laws and the Slepian property] 85a:60014

Ferrebee, Brooks An asymptotic expansion for one-sided Brownian exit densities. 85d:60151

Fernique, Xavier Sur les théorèmes de Hájek-Feldman et de Cameron-Martin. (English summary) [On the Hájek-Feldman and Cameron-Martin theorems] 85j:60072

Germani, A. See d'Alessandro, P.; et al., 85m:60077

Giraltis, L. Convergence of some nonlinear transformations of a Gaussian sequence to self-similar processes. (Russian. English and Lithuanian summaries) 85d:60067

Hertle, Alexander On the asymptotic behaviour of Gaussian spherical integrals. 85g:60011

Inoue, Kasuyuki Conjugate sets of self-similar Gaussian random fields. 85m:60095

Kahane, J.-P. Slow points of Gaussian processes. 85i:42012

Kel'bert, M. Ya. See Dobrushin, R. L., 85c:60075

Khadzhiiev, Dimit'r I. See Minkova, Leda D., 85j:60074

Kosachenko, Yu. V. Uniform convergence of stochastic integrals in the norm of an Orlicz space. (Russian) 85k:60073

Major, Péter On renormalizing Gaussian fields. 85g:60046

See also Breuer, Péter, 85d:60042

Mandelbaum, Avi Linear estimators and measurable linear transformations on a Hilbert space. 85h:62030

Minkova, Leda D. (with Khadzhiiev, Dimit'r I.) Equivalence and singularity of certain Gaussian measures. (Russian) 85j:60074

Nakano, Yuji (with Okabe, Yasunori) On a 2-dimensional  $[\alpha, \beta, \gamma]$ -Langevin equation. 85m:60106

(with Okabe, Yasunori) On a multidimensional  $[\alpha, \beta, \gamma]$ -Langevin equation. 85d:60114

Okabe, Yasunori See Nakano, Yuji, 85d:60114 and 85m:60106

Ortega, Joaquín On the size of the increments of nonstationary Gaussian processes. 85m:60056

Pap, D. Distribution of the norm of a Gaussian vector in a Banach space. (Russian. English and Lithuanian summaries) 85m:60067

Pechevskii, E. A. The Peierls condition (or GPS condition) is not always satisfied. 85h:82010

Piccioni, M. See d'Alessandro, P.; et al., 85m:60077

Preis, David Differentiation of measures in infinitely-dimensional spaces. 85a:60015

Rhee, WanSoo On the distribution of the norm for a Gaussian measure. (French summary) 85j:60012

Rihaoui, I. Deux types de loi zéro-un pour une probabilité gaussienne. [Two types of zero-one laws for a Gaussian probability] 85k:60048

Rückner, Michael Markov property of generalized fields and axiomatic potential theory. 85h:60111

Rosen, Jay Self-intersections of random fields. 85i:60052

Ruckebusch, Guy Markovian representations and spectral factorizations of stationary Gaussian processes. 85c:93087

Talagrand, Michel Mesures gaussiennes sur un espace localement convexe. (English summary) [Gaussian measures on a locally convex space] 85f:60009

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Yang, Ya Li On the zero-one laws for the ergodic quasi-invariant measures. 85h:60010

## 60G17 Sample path properties

Adler, Robert J. (with Feigin, Paul D.) On the cadlagity of random measures. 85j:60067

Allen, Beth Generalized level crossings and tangencies of a random field with smooth sample functions. 85e:60047

Berman, Simeon M. Local nondeterminism and local times of general stochastic processes. 85b:00041

Unboundedness of sample functions of stochastic processes with arbitrary parameter sets, with applications to linear and  $l_p$ -valued parameters. 85i:00039

Besson, Jean-Luc (with Wachter, Mario) Sur la finitude des moments du nombre de passages par un niveau d'une fonction aléatoire. (English summary) [On the finiteness of the moments of the number of level crossings of a random function] 85c:00055

Nombre moyen de passages par un niveau de fonctions aléatoires à trajectoires absolument continues. (English summary) [Mean number of level crossings of stochastic processes with absolutely continuous sample paths] 85d:00079

Egorov, V. A. Asymptotic behavior of the quadratic variation of trajectories of processes with independent increments. (Russian. English summary) 85h:00062

Feigin, Paul D. See Adler, Robert J., 85j:00087

Fernique, Xavier Régularité de fonctions aléatoires non gaussiennes. [Regularity of non-Gaussian random functions] 85k:00056

Finocchi, Maria C. On the sample functions of a stochastic process. (Italian summary) 85g:00051

Hendricks, W. J. A uniform lower bound for Hausdorff dimension for transient symmetric Lévy processes. 85a:00043

Kawata, Tatsu The mean derivatives and the absolute convergence of the Fourier series of a stochastic process. 85h:00063

Notes on the almost sure absolute convergence of the Fourier series of a stochastic process. 85g:00052

Kotelenez, Peter Continuity properties of Hilbert space valued martingales. 85m:00075

Leadbetter, M. R. Extremes of nonstationary stochastic waveforms. (See 85m:00005)

Lindgren, Georg Use and structure of Slepian model processes in crossing theory. 85e:00048

Extremal ranks and transformation of variables for extremes of functions of multivariate Gaussian processes. 85j:00088

Masjima, Makoto A self-similar process with nowhere bounded sample paths. 85j:00069

Miroshin, R. N. The use of the Rice series. (Russian. English summary) 85k:00057

Omarov, S. O. Interpolation of random processes using values of derivatives. (Russian. English summary) 85i:00040

Pisier, Gilles Some applications of the metric entropy condition to harmonic analysis. 85f:00061

Pruitt, William E. (with Taylor, Samuel James) The behaviour of asymmetric Cauchy processes for large time. 85i:00041

Taylor, Samuel James See Pruitt, William E., 85i:00041

Weber, Michel Analyse infinitésimale de fonctions aléatoires. [Infinitesimal analysis of random functions] 85b:00042

Wachter, Mario See Besson, Jean-Luc, 85c:00055

Yücesan, M. R. Level crossing problem of random functions and an application. (Not in MR)

secondary classifications (60G17)

Berman, Simeon M. High level sojourns of a diffusion process on a long interval. 85f:00114

Bourgain, J. Une remarque sur les ensembles stationnaires. [A remark on stationary sets] 85b:00003

Buldygin, V. V. (with Solntsev, S. A.) Asymptotic behavior of a Gaussian-Markov sequence. (Russian) 85b:00037

Cheng, Shi Hong On high level occupation times for some stationary processes. (Chinese. English summary) 85j:00060

Cranston, M. (with McConnell, Terry R.) The lifetime of conditioned Brownian motion. 85d:00150

Dehling, Harold Limit theorems for sums of weakly dependent Banach space valued random variables. 85g:00013

Fournier, John J. F. (with Ross, Kenneth A.) Random Fourier series on compact abelian hypergroups. 85k:00099

Fukushima, Masatoshi Basic properties of Brownian motion and a capacity on the Wiener space. 85h:00114

Geman, Donald (with Horowitz, Joseph; Rosen, Jay) A local time analysis of intersections of Brownian paths in the plane. 85m:00071

Goldman, André Temps de séjour et oscillation du mouvement brownien au voisinage de la sphère euclidienne. (English summary) [Sojourn times and oscillation of Brownian motion in the neighborhood of the Euclidean sphere] 85j:00150

Hanson, David Lee (with Russo, Ralph P.) Some more results on increments of the Wiener process. 85c:00040

Harris, Theodore E. Coalescing and noncoalescing stochastic flows in  $\mathbb{R}^1$ . 85m:00126

Horowitz, Joseph See Geman, Donald; et al., 85m:00071

Kahane, J.-P. Points multiples des processus de Lévy symétriques stables restreints à un ensemble de valeurs du temps. [Multiple points of stable symmetric Lévy processes restricted to a set of time values] 85b:00070

Kolasev, Yu. Ch. GB- and GC-properties of generalized ellipsoids. (Russian. English summary) 85j:00099

Komatsu, Takashi (with Takashima, Keizo) The Hausdorff dimension of quasi-all Brownian paths. 85m:00135

Lewy, Anna T. The Lévy-Lindeberg central limit theorem in Orlicz spaces  $L_\phi$ . 85c:00007

McConnell, Terry R. See Cranston, M., 85d:00150

Ricciardi, Luigi M. (with Sato, Shunsuke) A note on first passage time problems for Gaussian processes and varying boundaries. 85c:00053

Rosen, Jay A local time approach to the self-intersections of Brownian paths in space. 85a:00079

Self-intersections of random fields. 85i:00052

See also Geman, Donald; et al., 85m:00071

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Takashima, Keizo See Komatsu, Takashi, 85m:00135

Weber, Michel Sur le comportement asymptotique des processus gaussiens stationnaires. [On the asymptotic behavior of stationary Gaussian processes] 85d:00078

Polar sets of some Gaussian processes. 85b:00040

Wu, Rong See Zhou, Xing Wei, 85m:00138

Zähle, U. Sets and measures of fractional dimension. (German and Russian summaries) 85m:28009

Zhou, Xing Wei (with Wu, Rong) Some extreme theorems of Brownian motion. 85m:00138

## 60G20 Generalized stochastic processes

Fortet, R. Harmonic analysis of random distributions. 85e:00049

Fortus, M. L. Canonical correlations and canonical functionals for a stationary random process with power spectral density. (Russian) 85c:00056

Hitsuda, Masuyuki Central limit theorem for a simple interacting diffusion model and  $S'$ -valued processes. 85i:00042

Ito, Kiyosi A stochastic differential equation in infinite dimensions. 85e:00050

Ponomarenko, A. I. Generalized second-order random fields on homogeneous spaces. (Russian. English summary) 85k:00058

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Eshkaraev, Ch. Description of a conditional distribution for a three-dimensional Molchan-Nelson field. (Russian) 85g:00048

Fortet, R. Vecteurs et fonctions aléatoires à valeurs dans un espace de Hilbert séparable. [Random vectors and functions with values in a separable Hilbert space] 85h:00059

Kakihara, Yûichirô On a Hilbert module over an operator algebra and its application to harmonic analysis. 85c:00044

Klots, Lutz Peter Spektraltheorie Banach-Raum-wertiger homogener verallgemeinerte Felder. [Spectral theory of homogeneous generalized fields with values in a Banach space] 85j:00090

Major, Péter On renormalizing Gaussian fields. 85g:00046

Mitoma, Itaru Almost sure uniform convergence of continuous stochastic processes with values in the dual of a nuclear space. 85h:00013

Ponomarenko, A. I. Second-order generalized random fields on locally compact groups. (Russian) 85m:00070

Regularity of generalized random fields on locally compact groups. (Ukrainian. Russian summary) 85h:00076

## 60G25 Prediction theory [See also 62M20.]

Babayan, N. M. On the asymptotic behavior of the error of prediction. (Russian. English summary) 85b:00043

Bloomfield, Peter (with Jewell, Nicholas P.; Hayashi, Eric) Characterizations of completely nondeterministic stochastic processes. 85g:00053

Gylis, R. Conditions for the regularity of stationary random processes. (Russian. English and Lithuanian summaries) 85e:00051

Hayashi, Eric Prediction from part of the past of a stationary process. 85c:00057

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Jewell, Nicholas P. See Bloomfield, Peter; et al., 85g:00053

Klots, Lutz Peter Interpolierbarkeitskriterien für  $q$ -dimensionale homogene verallgemeinerte Felder. [Interpolability criteria for  $q$ -dimensional homogeneous generalized fields] 85f:00062

Lee, Sheu San Nonlinear prediction problems for Ornstein-Uhlenbeck process. 85c:00058

Makagon, Andraş On the Hellinger square integral with respect to an operator valued measure and stationary processes. 85j:00070

Mladenović, Pavle Extrapolation of moving average and autoregressive processes when the entire past of the processes is known. 85c:00059

Moklyachuk, M. P. Minimax estimates for functionals of a random field. (Russian) 85e:00052

Pourahmadi, Mohsen Exact factorization of the spectral density and its application to forecasting and time series analysis. 85d:00080

On the mean convergence of the best linear interpolator of multivariate stationary stochastic processes. 85h:00084

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Slepian, David Estimation of the Gauss-Markov process from observation of its sign. 85j:00071

Suciu, I. (with Valănescu, Ilie) Linear predictor for stationary processes in complete correlated actions. 85i:00043

(with Timotin, Dan) On the notion of completeness in prediction theory. 85d:00061

Sulaberidze, T. G. Stability in a problem of nonlinear prediction and filtering. (Russian. English and Georgian summaries) 85m:00076

Timotin, Dan The Levinson algorithm in linear prediction. 85g:00054

See also Suciu, I., 85d:00061

Truong-Van, B. Autoreproducing kernel moduli of spectral measures and Hellinger integrals—applications to stationary processes. 85d:00082

Valănescu, Ilie On stationary processes in complete correlated actions. 85h:00065

See also Suciu, I., 85i:00043

Vostrikova, L. Yu. "Predictable" tests for convergence in variation of probability measures. (Russian) 85k:00059

Whittle, Peter ★ Prediction and regulation by linear least-square methods. 85a:00044

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Abreu, José Luis (with Fetter, Helga) The shift operator of a nonstationary sequence in Hilbert space. 85k:00052

Bartmann, Flavio C. See Jewell, Nicholas P.; et al., 85f:00117b

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- Cybenko, George Restrictions of normal operators, Padé approximation and autoregressive time series. 85j:41035
- Petter, Helga See Abreu, José Luis, 85k:60052
- Goodrich, R. K. (with Gustafson, K. E.) Regular representation and approximation. 85m:43001
- Guadalupe Hernandez, José Javier (with Rubio de Francia, José Luis) Some problems arising from prediction theory and a theorem of Kolmogorov. 85i:42002
- Gustafson, K. E. See Goodrich, R. K., 85m:43001
- Hida, Takeyuki Causal calculus and an application to prediction theory. 85k:60080
- Jewell, Nicholas P. (with Bloomfield, Peter) Canonical correlations of past and future for time series: definitions and theory. 85f:62117a
- (with Bloomfield, Peter; Bartmann, Flavio C.) Canonical correlations of past and future for time series: bounds and computation. 85f:62117b
- Kaballa, Paul Parameter values of ARMA models minimising the one-step-ahead prediction error when the true system is not in the model set. 85a:62138
- Mirabel, A. P. (with Piterberg, L. I.) An algorithm in the problem of interpolation of multidimensional time series. 85b:62088
- Pavon, Michele Optimal interpolation for linear stochastic systems. 85h:93072
- Piterberg, L. I. See Mirabel, A. P., 85b:62088
- Pustylnikov, L. D. Toeplitz and Hankel matrices and their applications. (Russian) 85m:15014
- Remnev, V. N. Invariant solutions of linear prediction problems for random fields. (Russian) 85e:60057
- Rosenblatt, Murray Linear random fields. 85k:60070
- Rubio de Francia, José Luis See Guadalupe Hernandez, José Javier, 85i:42002
- Salehi, H. (with Soltani, A. Reza) On regularity of homogeneous random fields. 85a:60058
- Soltani, A. Reza Extrapolation and moving average representation for stationary random fields and Beurling's theorem. 85e:60042
- See also Salehi, H., 85a:60058
- Valdeescu, Ilie Continuous stationary processes in complete correlated actions. 85h:60060

### 60G30 Continuity and singularity of induced measures

- d'Alessandro, P. (with Germani, A.; Piccioni, M.) Relationships between measures induced by Itô and white noise linear equations. 85m:60077
- Eagleson, G. K. (with Gundy, Richard F.) On a theorem of Kabanov, Liptser and Shiryaev. 85b:60044
- Eisenberg, Bennett (with Gan, Shi Xin) Positive martingales and their induced measures. 85c:60060
- Fernique, Xavier Sur les théorèmes de Hájek-Feldman et de Cameron-Martin. (English summary) [On the Hájek-Feldman and Cameron-Martin theorems] 85j:60072
- Gan, Shi Xin See Eisenberg, Bennett, 85c:60060
- Germani, A. See d'Alessandro, P.; et al., 85m:60077
- Guivarc'h, Y. (with Raugi, A.) Sur les mesures invariantes de certaines chaînes de Markov définies par des transformations homographiques. [Invariant measures of certain Markov chains defined by homographic transformations] 85i:60044
- Gundy, Richard F. See Eagleson, G. K., 85b:60044
- Khadzhiyev, Dimit'r I. See Minkova, Leda D., 85j:60074
- Liptser, R. Sh. (with Shiryaev, A. N.) On the problem of "predictable" criteria of contiguity. 85j:60073
- Minkova, Leda D. (with Khadzhiyev, Dimit'r I.) Equivalence and singularity of certain Gaussian measures. (Russian) 85j:60074
- Otáhal, Antonín Integrability of Radon-Nikodým density power for Gaussian measures. 85m:60078
- Piccioni, M. See d'Alessandro, P.; et al., 85m:60077
- Raugi, A. See Guivarc'h, Y., 85i:60044
- Shiryaev, A. N. See Liptser, R. Sh., 85j:60073
- Veeh, Jerry Alan Equivalence of measures induced by infinitely divisible processes. 85c:60061
- Zhao, Zhong Xin Gaussian measures on product Banach spaces. (Chinese) 85h:60066

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- Armstrong, Thomas E. (with Prikyr, Karel) Singularity and absolute continuity with respect to strategic measures. 85b:28004
- Benassi, Albert Théorème de traces stochastiques et fonctionnelles multiplicatives pour des champs gaussiens markoviens d'ordre p. [Stochastic trace theorem and multiplicative functionals for Markov Gaussian fields of order p] 85f:60057
- Davis, Burgess (with Monroe, Itrel) Randomly started signals with white noise. 85j:60149
- Lifshits, M. A. The fibering method for processes with independent increments. (Russian. English summary) 85i:60067
- Liptser, R. Sh. (with Pukelsheim, Friedrich; Shiryaev, A. N.) Necessary and sufficient conditions for contiguity and complete asymptotic separability of probability measures. (Russian) 85e:62032
- Monroe, Itrel See Davis, Burgess, 85j:60149
- Prikyr, Karel See Armstrong, Thomas E., 85b:28004
- Pukelsheim, Friedrich See Liptser, R. Sh.; et al., 85e:62032
- Rihaoui, I. Continuité et différentiabilité des translations dans un espace gaussien. [Continuity and differentiability of translations in a Gaussian space] 85e:60044
- Shiryaev, A. N. See Liptser, R. Sh.; et al., 85e:62032
- Yuan, John On the structure of monoids of admissible translates of multivariate probability measures. 85d:60033

### 60G35 Applications (signal detection, filtering, etc.) [See also 62M20, 94Axx.]

- Bell, William R. Signal extraction for nonstationary time series. 85k:60060

- Campanis, Stamatis (with Maury, Elias) Sampling designs for the detection of signals in noise. 85a:60045
- Chaleyat-Maurel, Mireille Robustesse en théorie du filtrage non linéaire et calcul des variations stochastiques. (English summary) [Robustness in nonlinear filtering theory and in the stochastic calculus of variations] 85e:60053
- Kallianpur, G. (with Karandikar, Rajeeva L.) Some recent developments in nonlinear filtering theory. 85f:60063
- (with Karandikar, Rajeeva L.) A finitely additive white noise approach to nonlinear filtering. 85c:60063
- Karandikar, Rajeeva L. See Kallianpur, G., 85c:60062 and 85f:60063
- Khadzhiyev, Dimit'r I. Filtering of Gaussian processes in the case of linear observations. (Russian) 85m:60079
- Körensliogu, H. Nonlinear filtering equation for Hilbert space valued processes. 85m:60080
- Maury, Elias See Campanis, Stamatis, 85a:60045
- Ocone, Daniel Multiple integral expansions for nonlinear filtering. 85d:60083

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- Ahmed, N. U. See Dabbous, T. E., 85c:93104
- Anderson, Brian D. O. Port properties of nonlinear reciprocal networks. 85d:94016
- Baker, Charles R. Channel models and their capacity. 85d:94009
- (with Gualtierotti, Antonio F.) Detection of non-Gaussian signals in Gaussian noise. (See 85m:62005)
- Benek, V. E. (with Karatas, Ioannis) Estimation and control for linear, partially observable systems with non-Gaussian initial distribution. 85d:93040
- Brockett, Patrick L. Optimal detection in linear reverberation noise. (See 85m:62005)
- Cartledge, John C. Measures of information for continuous observations. 85i:94008
- Chaleyat-Maurel, Mireille (with Michel, Dominique) Une condition suffisante de non-existence d'un filtre de dimension finie. (English summary) [A sufficient condition for the nonexistence of a finite-dimensional computable filter] 85c:93102
- Dabbous, T. E. (with Ahmed, N. U.) Nonlinear filtering of diffusion processes with discontinuous observations. 85c:93104
- Dashevskii, M. L. Design of conditionally optimal filters based on optimal nonlinear filtering equations. (Not in MR)
- Elliott, Robert J. ★ Stochastic calculus and applications. 85b:60059
- Fortet, R. Vecteurs et fonctions aléatoires à valeurs dans un espace de Hilbert séparable. [Random vectors and functions with values in a separable Hilbert space] 85h:60050
- Gualtierotti, Antonio F. See Baker, Charles R., (85m:62005)
- Hasewinkel, Michiel See Krishnaprasad, P. S.; et al., 85f:93070
- Hilbey, Joseph L. Stochastic reliability functions for failure rates derived from Gaussian processes. 85a:94002
- Jørgensen, Palle E. T. An optimal spectral estimator for multidimensional time series with an infinite number of sample points. 85d:62097
- Karatas, Ioannis See Benek, V. E., 85d:93040
- Khadzhiyev, Dimit'r I. An example of efficient filtering and extrapolation. (Russian) 85c:60043
- Konecny, Frans Parameter estimation for point processes with partial observations: a filtering approach. 85k:62187
- Krishnaprasad, P. S. (with Marcus, Steven I.; Hasewinkel, Michiel) Current algebras and the identification problem. 85f:93070
- Kunita, Hiroshi Stochastic partial differential equations connected with nonlinear filtering. 85c:60068
- Kusuoka, Shigeo (with Stroock, Daniel W.) The partial Malliavin calculus and its application to nonlinear filtering. 85j:60120
- Lo, James Ting Ho (with Ng, Sze Kui) Optimal orthogonal expansion for estimation. I. Signal in white Gaussian noise. 85k:94014a
- (with Ng, Sze Kui) Optimal orthogonal expansion for estimation. II. Signal in counting observations. 85k:94014b
- Malakhov, A. N. (with Muzychuk, O. V.) Structure of statistical relations between a Gaussian random perturbation and the output coordinate of a stochastic system. 85k:34146
- Mal'tsev, Arkadiĭ Anatolievich (with Silaev, A. M.) Optimal estimation in dynamic systems with simultaneous action of impulse and noise disturbances. 85c:93096
- Marcus, Steven I. See Krishnaprasad, P. S.; et al., 85f:93070
- Michel, Dominique See Chaleyat-Maurel, Mireille, 85c:93102
- Mitter, Sanjoy K. Lectures on nonlinear filtering and stochastic control. 85c:93053
- Miyahara, Yoshio Filtering equations for infinite-dimensional nonlinear filtering problems. 85c:93107
- Muzychuk, O. V. See Malakhov, A. N., 85k:34146
- Ng, Sze Kui See Lo, James Ting Ho, 85k:94014a and 85k:94014b
- Nikul'chinkova, L. A. (with Smolyakova, L. G.) Nonlinear optimal estimation of non-Gaussian processes. (Russian) 85h:93078
- Nusbaum, M. Optimal filtration of a function of many variables in white Gaussian noise. 85k:93072
- Pardoux, E. Equations of nonlinear filtering and application to stochastic control with partial observation. 85c:93109
- Rao, M. M. Filtering and smoothing of nonstationary processes. (See 85m:62005)
- The spectral domain of multivariate harmonizable processes. 85k:60053
- Rosovskii, B. L. ★ Эволюционные стохастические системы. (Russian) [Stochastic evolution systems] 85k:60078
- Shevlyakov, A. Yu. Filtering of processes with independent increments. (Russian) 85f:93067
- Shimizu, Akinobu Fundamental solutions of stochastic partial differential equations arising in nonlinear filtering theory. 85h:60091
- Silaev, A. M. See Mal'tsev, Arkadiĭ Anatolievich, 85c:93096
- Smolyakova, L. G. See Nikul'chinkova, L. A., 85h:93078
- Stroock, Daniel W. See Kusuoka, Shigeo, 85j:60120
- Sussmann, Hector J. On the spatial differential equations of nonlinear filtering. (French summary) 85h:93046

Treviño, G. Topological invariance in stochastic analysis. (See 85g:93008)

# 60G40 Stopping times; optimal stopping problems; gambling theory

[See also 62L15]

- Barlow, M. T. (with Jacka, Saul D.; Yor, Marc) Inégalités pour un couple de processus arrêtés à un temps quelconque. (English summary) [Inequalities for a pair of processes stopped at a random time] 85j:60075
- Barron, Austin See Glasser, Kenneth S.; et al., 85b:60045
- Bismut, Jean-Michel Addendum: "Control of alternating processes and applications" [Z. Wahrsch. Verw. Gebiete 47 (1979), no. 3, 241-288; MR 80g:60045]. (French) 85f:60064
- Buckdahn, R. (with Engelbert, H. J.) Randomised stopping times: Doob's optional sampling theorem and optimal stopping. 85m:60061
- Campbell, Gregory Optimal selection based on relative ranks of a sequence with ties. 85h:60067
- Chen, Robert (with Hwang, F. K.) On the values of an  $(m, p)$  urn. 85h:60061
- Dellacherie, C. (with Lenglart, E.) Sur des problèmes de régularisation, de recollement et d'interpolation en théorie des processus. [On problems of regularization, gluing, and interpolation in the theory of processes] 85i:60045
- Dochviri, V. M. Optimal stopping of partially observable random processes in the Kalman-Bucy scheme. (Russian. English and Georgian summaries) 85j:60076
- (with Shashashvili, M. A.) Convergence of value functions in a discrete problem of optimal stopping with incomplete data. (Russian. English and Georgian summaries) 85h:60063
- Engelbert, H. J. See Buckdahn, R., 85m:60061
- Flatau, J. (with Irie, A.) Optimal stopping for extremal processes. 85c:60063
- Foote, Jean-Pierre The past of a stopping point and stopping for two-parameter processes. 85g:60055
- Glasser, Kenneth S. (with Holmsager, Richard; Barron, Austin) The  $d$  choice secretary problem. 85b:60045
- Holmsager, Richard See Glasser, Kenneth S.; et al., 85b:60045
- Hwang, F. K. See Chen, Robert, 85h:60061
- Irie, A. On the infinitesimal characterization of monotone stopping problems in continuous time. 85m:60062
- See also Flatau, J., 85c:60063
- Jacka, Saul D. See Barlow, M. T.; et al., 85j:60075
- Lanery, E. Temps d'arrêt optimal des processus non bornés. (English summary) [Optimal stopping time of unbounded processes] 85m:60063
- Lawler, G. F. (with Vanderbei, R. J.) Markov strategies for optimal control problems indexed by a partially ordered set. 85a:60046
- Lenglart, E. See Dellacherie, C., 85i:60045
- Longuecker, M. Optimal stopping under general dependence conditions. 85a:60047
- Majumdar, A.-A.-K. (with Sakaguchi, Minoru) Optimal stopping for the urn problem with random termination. 85h:60068
- Morimoto, Hiroaki Optimal switching problems of tandem type. 85d:60064
- Pestien, Victor C. Weak approximation of strategies in measurable gambling. 85d:60065
- Petrucelli, Joseph D. Best-choice problems involving recall and uncertainty of selection when the number of observations is random. 85h:60069
- Pinkas, James, III. Extreme order statistics with cost of sampling. 85c:60064
- Robin, M. On the semigroup approach for ergodic problems of optimal stopping. 85b:60046
- Sakaguchi, Minoru Best choice problems with full information and imperfect observation. 85j:60077
- See also Majumdar, A.-A.-K., 85h:60068
- Shashashvili, M. A. See Dochviri, V. M., 85j:60076
- Stote, Winfried On a class of stopping times for  $M$ -estimators. 85m:60064
- Szajowski, K. Optimal stopping of a sequence of maxima over an unobservable sequence of maxima. 85j:60078
- Vanderbei, R. J. See Lawler, G. F., 85a:60046
- Yor, Marc See Barlow, M. T.; et al., 85j:60075
- Yoshida, Minoru Probability maximizing approach to a secretary problem with change-point of the distribution law of the observed process. 85j:60079

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- Armstrong, Thomas E. Finitely additive  $F$ -processes. 85a:60062
- Bai, D. S. See Choe, K. L., 85c:62167
- Bather, J. A. Optimal stopping of Brownian motion: a comparison technique. 85i:62061
- Berry, Donald A. (with Fristedt, Bert) Maximizing the length of a success run for many-armed bandits. 85c:62206
- Brusa, F. Thomas A unified approach to a class of best choice problems with an unknown number of options. 85m:62162
- Choe, K. L. (with Bai, D. S.) A secretary problem with backward solicitation and uncertain employment. 85c:62167
- Dochviri, V. M. (with Shashashvili, M. A.) On the convergence of costs in the problem of optimal stopping of stochastic processes in the scheme of Kalman-Bucy. 85b:62076
- Fristedt, Bert See Berry, Donald A., 85c:62206
- Grant, Peter Secretary problems with inspection costs as a game. 85c:62168
- Gulati, C. M. See Lyanage, L. H.; et al., 85c:60095
- Gut, Allan (with Schmidt, Klaus D.)  $\star$  Amarts and set function processes. 85h:60064
- Complete convergence and convergence rates for randomly indexed partial sums with an application to some first passage times. 85f:60045
- Hill, James M. See Lyanage, L. H.; et al., 85c:60095
- Lyanage, L. H. (with Gulati, C. M.; Hill, James M.) A generalization of the gambler's ruin problem. 85c:60095
- Martinez, Adam T. Second order approximation to the risk of a sequential procedure. 85c:62215
- McConnell, Terry R. Exit times of  $N$ -dimensional random walks. 85c:60065
- Mensali, J.-L. On a degenerate quasivariational inequality with Neumann boundary conditions. 85h:49018

- Miller, Robert A. (with Voltaire, Karl) A stochastic analysis of the tree paradigm. 85a:90112
- Morimoto, Hiroaki On a discretization procedure for the stopping time problem. 85c:62170
- Obatake, Yoshio Optimal stopping in generalized semi-Markov jump processes. 85d:60165
- Salmien, P. Optimal stopping of one-dimensional diffusions. 85j:60148
- Schmidt, Klaus D. See Gut, Allan, 85h:60064
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- Tierney, Luke The hazards of optimal proofreading. 85c:62221
- Tongring, Nils Multiple points of Brownian motion. 85g:60088
- Voltaire, Karl See Miller, Robert A., 85a:90112

# 60G42 Martingales with discrete parameter

- Dall'Aglio, Giorgio Introduction to martingales. (Italian) 85b:60047
- Fasakas, István Convergence of vector-valued martingales with multidimensional indices. 85c:60065
- Föllmer, Hans Almost sure convergence of multiparameter martingales for Markov random fields. 85b:60048
- Hai, Shih Hsiung (with Yao, Yu Shan) A strong law of large numbers for martingales. 85i:60063
- Huggins, R. M. See Scott, D. J., 85a:60048
- Long, Rui Lin On weighted  $\Phi$ -inequalities for martingales. (Chinese) 85f:60065
- Mogyoródi, J. (with Móri, T. F.) Necessary and sufficient condition for the maximal inequality of convex Young functions. 85d:60086
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- Saloff-Coste, Laurent À propos de certaines martingales transformées. (English summary) [Some martingales transforms] 85m:60085
- Schipp, Ferenc The dual space of martingale VMO space. (See 85g:60005)
- Scott, D. J. (with Huggins, R. M.) On the embedding of processes in Brownian motion and the law of the iterated logarithm for reverse martingales. 85a:60048
- Wright, A. L. See Newman, C. M., 85d:60088
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- Bourgain, J. Some remarks on Banach spaces in which martingale difference sequences are unconditional. 85a:46011
- Bulldig, V. V. Refinement of limit theorems for conditional means in Banach spaces and their applications. (Russian) 85f:60012
- Butzer, P. L. (with Schulz, D.) The random martingale central limit theorem and weak law of large numbers with  $\alpha$ -rates. 85d:60044
- (with Schulz, D.) General random sum limit theorems for martingales with large  $O$ -rates. (German and Russian summaries) 85f:60035
- Campbell, L. Lorne Information submartingales. (See 85i:60018a)
- Davis, M. H. A. The martingale theory of point processes and its application to the analysis of failure-time data. (See 85h:90059)
- Ekushov, A. I. The strong invariance principle and some of its applications. (Russian) 85j:60054
- Ghoussoub, N. (with Rosenthal, H. P.) Martingales,  $G_\delta$ -embeddings and quotients of  $L_1$ . 85c:46013
- Haeuser, Erich A note on the rate of convergence in the martingale central limit theorem. 85j:60037
- An exact rate of convergence in the functional central limit theorem for special martingale difference arrays. 85c:60040
- Hall, Peter Central limit theorem for integrated square error of multivariate nonparametric density estimators. 85h:60079
- Hill, Theodore P. Almost sure stability of partial sums of uniformly bounded random variables. 85a:60037
- Jeganathan, P. A solution of the martingale central limit problem. I, II. 85j:60056
- Kubacki, K. S. (with Sznajd, D.) Weak convergence of martingales with random indices to infinitely divisible laws. 85f:60039
- Lai, Tse Leung (with Wei, Ching Zong) A note on martingale difference sequences satisfying the local Marcinkiewicz-Zygmund condition. 85j:60049
- Meier, Radko Martingale theorems in the ergodic theory. 85b:28017
- Moriconi, Franco Martingales applied to risk theory: submartingale return processes and adjustability. (Italian. English summary) 85f:90018
- Rao, M. Bhaskara See Shanbhag, D. N., 85f:60004
- Rootsén, Holger Central limit theory for martingales via random change of time. 85f:60042
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- Schulz, D. See Butzer, P. L., 85d:60044 and 85f:60035
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- Ahn, Wi Chong (with Choi, Bong Dae; Lim, Jae Kyu) On the uniform integrability of continuous parameter stochastic processes. 85c:60054
- Base, Richard Occupation times of  $d$ -dimensional semimartingales. 85j:60080
- Choi, Bong Dae See Ahn, Wi Chong; et al., 85c:60054
- Darling, R. W. R. Convergence of martingales on a Riemannian manifold. 85h:60070

- Emery, M. (with Stricker, C.; Yan, Jia An) Valeurs prises par les martingales locales continues à un instant donné. (English summary) [Values taken by continuous local martingales at a given moment] 85c:60066
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- On the quadratic variation process of a continuous martingale. 85g:60056
- Kasamaki, Norihiko On the reverse Hölder inequalities for certain exponential processes. 85h:60071
- (with Sekiguchi, Takeshi) Uniform integrability of continuous exponential martingales. 85i:60046
- Kolomiets, E. I. Relations between triplets of local characteristics of semimartingales. (Russian) 85m:60086
- Lim, Jae Kyu See Ahn, Wl Chong; et al., 85e:60054
- Nguyen-Minh-Duc (with Nguyen-Xuan-Loc) On the transformation of martingales with a two-dimensional parameter set by convex functions. 85j:60081
- Nguyen-Xuan-Loc See Nguyen-Minh-Duc, 85j:60081
- Novikov, A. A. Martingale identities, inequalities and their applications in nonlinear boundary problems for random processes. (Russian) 85j:60082
- Nualart Rodón, David Martingales non fortes à variation indépendante du chemin. ["Nonstrong" martingales with independent path variation] 85a:60049
- On the quadratic variation of two-parameter continuous martingales. 85g:60057
- Sekiguchi, Takeshi See Kasamaki, Norihiko, 85i:60046
- Stricker, C. See Emery, M.; et al., 85c:60066
- Traki, Mohammed Existence de solutions d'un problème de martingales. (English summary) [Existence of solutions for a martingale problem] 85f:60066
- Tubaro, L. An estimate of Burkholder type for stochastic processes defined by the stochastic integral. 85h:60072
- Yan, Jia An ★ Yang yu sui jifen yinlun. (Chinese) [Introduction to martingales and stochastic integrals] 85g:60058
- Martingales locales sur un ouvert droit optionnel. [Local martingales on an optional open interval] 85d:60089
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- Zaremba, P. Embedding of semimartingales and Brownian motion. (Russian and Lithuanian summaries) 85a:60050
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- Chitashvili, R. Ya. Martingale ideology in the theory of controlled stochastic processes. 85h:60086
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- (with Shiryaev, A. N.) On the problem of "predictable" criteria of contiguity. 85j:60073
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- Uchiyama, Akihito A constructive proof of the Fefferman-Stein decomposition of BMO on simple martingales. 85j:60083

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- Griffin, Philip S. Probability estimates for the small deviations of  $d$ -dimensional random walk. 85f:60069a
- An integral test for the rate of escape of  $d$ -dimensional random walk. 85f:60069b
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- Newman, C. M. (with Rinott, Yosef; Tversky, Amos) Nearest neighbors and Voronoi regions in certain point processes. 85m:60023
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- Bobkov, S. G. Variations of random processes with independent increments. (Russian. English summary) 85a:60057
- Brown, Timothy C. (with Kupka, Joseph) Ramsey's theorem and Poisson random measures. 85c:60074
- Enchev, Ognian Differential calculus for Gaussian random measures. 85b:60053
- Kallenberg, Olav ★ Random measures. 85f:60076
- Kupka, Joseph See Brown, Timothy C., 85c:60074
- Ma, Zhi Ming A note on random integral measures. (Chinese) 85g:60060
- Weis, Lutz W. A note on diffuse random measures. 85d:60096
- Zessin, Hans The method of moments for random measures. 85d:60097

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- Lienant, Alfred Structure- and convergence theorems for critical branching processes with general phase space. I. 85m:60148
- Robertson, A. P. (with Thornt, M. L.) On translation-bounded measures. 85m:28006
- Shevlyakov, A. Yu. The structure of square-integrable functionals of Gaussian measures. (Russian) 85k:60074
- Szulga, J. (with Woyczyński, W. A.) Existence of a double random integral with respect to stable measures. 85j:60101
- Thornt, M. L. See Robertson, A. P., 85m:28006
- Weis, Lutz W. On the representation of order continuous operators by random measures. 85g:47047
- Woyczyński, W. A. See Szulga, J., 85j:60101

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- Dobrushin, R. L. (with Kel'bert, M. Ya.) Stationary local additive functionals of Gaussian random fields. (Russian. English summary) 85c:60075
- Dorea, C. C. Y. Random fields. (Portuguese) 85i:60050
- Dykhovichnyi, A. A. Estimation of the correlation function of a homogeneous and isotropic Gaussian random field. (Russian) 85k:60067
- Imkeller, Peter Local times for a class of multiparameter processes. 85k:60068
- Inoue, Kazuyuki Conjugate sets of self-similar Gaussian random fields. 85m:60095
- Kallianpur, G. (with Mandrekar, V.) Nondeterministic random fields and Wold and Halmos decompositions for commuting isometries. 85c:60076
- Kel'bert, M. Ya. See Dobrushin, R. L., 85c:60075
- Klots, Lutz Peter Spektraltheorie Banach-Raum-wertiger homogener verallgemeinerte Felder. [Spectral theory of homogeneous generalized fields with values in a Banach space] 85j:60090
- Krêe, P. Realization of Gaussian random fields. 85b:60054
- Leonenko, M. M. Convergence of distributions of functions of nonlinear transformations of Gaussian random fields. (Russian) 85i:60051
- Macjima, Makoto On a class of self-similar processes. 85d:60098
- Mandrekar, V. See Kallianpur, G., 85c:60076
- Marnevakaya, L. A. (with Yanovich, L. A.) The Laplace method for Riemann integrals of random fields. (Russian. English summary) 85m:60096
- Mishura, Yu. S. Some properties of discontinuous two-parameter martingales. (Russian) 85b:60055
- Molchanov, S. A. (with Stepanov, A. K.) Percolation in random fields. I. (Russian. English summary) 85j:60091
- (with Stepanov, A. K.) Percolation in random fields. II. (Russian. English summary) 85j:60092
- O'Brien, George L. (with Vervaat, W.) Marginal distributions of self-similar processes with stationary increments. 85d:60099
- Orsingher, Enzo Some results on geometry of Gaussian random fields. 85f:60077
- Pham Phu Hien On the strong mixing condition for a homogeneous random field. (Russian. English summary) 85f:60078
- Ponomarenko, A. I. Pseudohomogeneous random fields with values in a Banach space. (Russian) 85k:60069
- Regularity of generalized random fields on locally compact groups. (Ukrainian. Russian summary) 85h:60076
- Radchenko, O. M. The Rice formula for random fields. (Russian) 85d:60100
- Rakhimov, G. M. On the estimation of the correlation function of a homogeneous and isotropic random field on the sphere. II. (Russian) 85h:60077
- Remnev, V. N. Invariant solutions of linear prediction problems for random fields. (Russian) 85c:60057
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- Rosenblatt, Murray Linear random fields. 85k:60070
- Salehi, H. (with Soltani, A. Reza) On regularity of homogeneous random fields. 85a:60058
- Savenko, S. M. Martingale representation of some  $\sigma$ -algebras on the plane. (Russian) 85a:60059

- Sisova, A. F. (with Tovstik, T. M.) Modeling of a random field on a sphere. (Russian. English summary) 85c:60077
- Soltani, A. Reza See Salehi, H., 85a:60058
- Stepanov, A. K. See Molchanov, S. A., 85j:60091 and 85j:60092
- Surgailis, D. On infinitely divisible OS-positive random fields. 85h:60078
- Taqqu, Murad S. (with Wolpert, Robert) Infinite variance self-similar processes subordinate to a Poisson measure. 85b:60056
- Terdik, György Spectral representation of homogeneous random fields and autoregressive fields with a discrete argument. (Russian) 85j:60093
- Tikhomirov, A. N. Normal approximation of sums of vector-valued mixing random fields. (Russian) 85j:60094
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- Vervaat, W. See O'Brien, George L., 85d:60099
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- Yanovich, L. A. See Marnevakaya, L. A., 85m:60096
- Zachary, Stan Countable state space Markov random fields and Markov chains on trees. 85c:60058
- Zähle, U. Level crossings in the fractal case. (Russian) 85d:60101
- A general Rice formula, Palm measures, and horizontal-window conditioning for random fields. 85m:60097

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- Akhmedov, S. S. Some corollaries of a general lemma on large deviation probabilities for mixing random fields. (Russian) 85c:60031
- Allain, Marie-France Semi-martingales indexées par une partie de  $\mathbb{R}^d$  et formule de Itô. Cas continu. [Semimartingales indexed by a subset of  $\mathbb{R}^d$  and the Itô formula. The continuous case] 85k:60072
- Allen, Beth Generalized level crossings and tangencies of a random field with smooth sample functions. 85c:60047
- Atkinson, Bruce On Dynkin's Markov property of random fields associated with symmetric processes. 85a:60076
- Bass, Richard Stochastic integral representations for multiparameter random fields with stationary independent increments. 85c:60082
- Benaï, Albert Théorème de traces stochastiques et fonctionnelles multiplicatives pour des champs gaussiens markoviens d'ordre  $p$ . [Stochastic trace theorem and multiplicative functionals for Markov Gaussian fields of order  $p$ ] 85f:60057
- Berkse, I. Gaussian approximation of mixing random fields. 85m:60040
- Breuer, Péter (with Major, Péter) Central limit theorems for nonlinear functionals of Gaussian fields. 85d:60042
- Dang Dyk Khau Asymptotic behavior of the variance of an arithmetic mean estimate of the unknown mean value of a homogeneous random field. (Russian. English summary) 85g:62148
- Dassi, M. Propriétés markoviennes de processus sur  $\mathbb{R}^2$ . (English summary) [Markov properties of processes in  $\mathbb{R}^2$ ] 85f:60103
- Fatalov, V. R. Exact asymptotic behavior of the distribution function of the maximum of an inhomogeneous Gaussian random field. (Russian. Armenian summary) 85g:60049
- Föllmer, Hans Almost sure convergence of multiparameter martingales for Markov random fields. 85b:60048
- Geman, Donald (with Horowitz, Joseph; Rosen, Jay) A local time analysis of intersections of Brownian paths in the plane. 85m:60071
- Glelerak, R. On the scaling limits in the Euclidean (quantum) field theory. 85d:81088
- Haba, Z. Remarks on the stochastic process corresponding to  $(1/\varphi^2)_1$  interaction. 85g:81046
- Hajek, Bruce (with Wong, Eugene) Multiple stochastic integrals: projection and iteration. 85c:60062
- Horowitz, Joseph See Geman, Donald; et al., 85m:60071
- Jarek, Paweł See Świąda, Edward, 85i:60104
- Klesov, O. I. Existence of moments of the supremum of "weighted" multiple sums. (Russian) 85d:60090
- Major, Péter On renormalizing Gaussian fields. 85g:60046
- See also Breuer, Péter, 85d:60042
- Makhno, S. Ya. Conditional Gaussian property of random fields. (Russian) 85f:60059
- Malyshch, V. A. Semi-invariants of nonlocal functionals of Gibbs random fields. (Russian) 85f:82005
- Nguyen-Minh-Duc (with Nguyen-Xuan-Loc) On the transformation of martingales with a two-dimensional parameter set by convex functions. 85j:60081
- Nguyen-Xuan-Loc See Nguyen-Minh-Duc, 85j:60081
- Noda, Akio Lévy's Brownian motion: total positivity structure of  $M(t)$ -process and deterministic character. 85m:60137
- Papangelou, F. Stationary one-dimensional Markov random fields with a continuous state space. 85c:60178
- Ponomarenko, A. I. Generalized second-order random fields on homogeneous spaces. (Russian. English summary) 85k:60058
- Röckner, Michael Markov property of generalized fields and axiomatic potential theory. 85h:60111
- Rosen, Jay See Geman, Donald; et al., 85m:60071
- Rosonov, Yu. A. Some generalizations of the Dirichlet problem. (Russian) 85j:46068
- Świąda, Edward (with Jarek, Paweł) On the existence of random fields specified by a specification. 85i:60104
- Shigekawa, Ichiro On a quasi-everywhere existence of the local time of the 1-dimensional Brownian motion. 85m:60132
- Soltani, A. Reza Extrapolation and moving average representation for stationary random fields and Beurling's theorem. 85c:60042
- Stenkin, D. B. Reconstruction of the distribution of a random field from incomplete configurations. (Russian) 85i:28006
- Takahata, Hiroshi On the central limit theorem for weakly dependent random fields. 85m:60052

On the rates in the central limit theorem for weakly dependent random fields. 85a:00031

Tempelman, A. A. Specific characteristics and variational principle for homogeneous random fields. 85m:00154

Vanmarcke, Erik. Random fields. 85h:93064

Vares, Maria Eulalia. Local times for two-parameter Lévy processes. 85g:00061

Weber, Michel. Polar sets of some Gaussian processes. 85b:60040

Wong, Eugene. See Hajek, Bruce, 85a:00063

Zinchenko, N. M. The functional law of the iterated logarithm for multiparameter Brownian motion. (Russian) 85g:60041

Approximation of sums of random variables with multi-indices. (Russian) 85f:00050

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Grincevičius, A. Distribution of a random power series. (Russian. English and Lithuanian summaries) 85j:00096

Hoegate, P. The natural boundary problem for random power series with degenerate tail fields. 85d:00103

Iosifescu, Marius. Asymptotic properties of learning models. 85m:00096

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Kawata, Tatsu. Lipschitz classes of periodic stochastic processes and Fourier series. 85c:00079

Kovalchik, I. M. Linear transformations of random functions. (Russian) (Not in MR)

Liggett, Thomas M. See Durrett, Richard, 85c:00059

Mikulevičius, R. See Grigelionis, B., 85h:00079

Mishra, M. N. (with Nayak, N. N.; Pattanayak, S.) Strong result for real zeros of random polynomials. 85a:00060

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Sato, Hajime. A construction of a back-ground noise. 85h:00080

Sudderth, William D. Gambling problems with a limit inferior payoff. 85c:00080

Thangaraj, V. See Sambandham, M.; et al., 85b:00057

Therburn, Daniel. On the mean number of trials until the last trials satisfy a given condition. 85b:00058

Toscani, G. See Gabetta, E., 85j:00095

Tovstik, T. M. Modeling of a homogeneous vector field. (Russian. English summary) (Not in MR)

Wang, You Jing. Bounds on the average number of real roots of a random algebraic equation. (Chinese) 85c:00081

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Choi, Bong Dae. Hyperamarts: conditions for regularity of continuous parameter processes. 85j:00084

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Kuo, Hui Hsiung. Brownian functionals and applications. 85g:00072

Longuecker, M. Optimal stopping under general dependence conditions. 85a:00047

Maejima, Makoto. A self-similar process with nowhere bounded sample paths. 85j:00069

Matveev, V. V. Fourier series for an almost periodic random sequence. (Russian. English summary) 85j:42056

Nisio, M. See Fleming, W. H., 85m:49032

Pavou, Michele. Canonical correlations of past inputs and future outputs for linear stochastic systems. 85i:93036

Pulmannová, Sylvia (with Dvurečenskij, Anatolij) Stochastic processes on quantum logics. 85d:81016

Queffelec, Hervé. Sur une estimation probabiliste liée à l'inégalité de Bohr. [A probabilistic estimate associated with the Bohr inequality] 85c:43013

Rodenhausen, Hermann. A characterization of nonstandard liftings of measurable functions and stochastic processes. 85h:28008

Serrecchia, Augusto. Relative record in a birth-and-death stochastic process. (Italian. English summary) 85c:60138

Smit, J. C. (with Vervaat, W.) On divergence and convergence of sums of nonnegative random variables. 85f:60049

Vervaat, W. See Smit, J. C., 85f:60049

Yanagi, Kenjiro. Covariance operators and von Neumann's theory of measurements. 85g:46052

60Hxx Stochastic analysis [See also 58G32.]

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60H05 Stochastic integrals

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Baklan, V. V. Integration of random functions with respect to a Wiener random measure. (Russian) 85g:00061

Bas, Richard. Stochastic integral representations for multiparameter random fields with stationary independent increments. 85c:00082

Berman, Nadav (with Root, William L.) A weak stochastic integral in Banach space with application to a linear stochastic differential equation. 85c:00083

Chevet, Simone. Sur les fonctions aléatoires de Itô-Wick et les intégrales multiples. (English summary) [On random Itô-Wick functions and multiple integrals] 85h:00081

Chung, K. L. (with Williams, R. J.) Introduction to stochastic integration. 85g:00062

Elliott, Robert J. Stochastic calculus and applications. 85b:00059

Emery, M. (with Perkins, Edwin) La filtration de  $B + L$ . (English summary) [The filtration of  $B + L$ ] 85c:00084

Erpenbeck, Günter. Stochastic  $L^2$ -integration with a locally compact time-region. 85j:00097

Gal'chuk, L. I. Stochastic integrals with respect to optional semimartingales and random measures. (Russian. English summary) 85h:00082

Gaveau, Bernard (with Moulinier, Jean-Marc) Intégrales stochastiques généralisées, équations intégrales stochastiques à plusieurs paramètres et géométrie infinitésimale gaussienne. (English summary) [Generalized stochastic integrals, stochastic integral equations with multidimensional parameter and infinitesimal Gaussian geometry] 85c:00085

Hajek, Bruce (with Wong, Eugene) Multiple stochastic integrals: projection and iteration. 85a:00062

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Huang, Zhi Yuan. Martingale measures and stochastic integrals on metric spaces. (Chinese summary) 85i:00053

Karandikar, Rajeeva L. Interchanging the order of stochastic integration and ordinary differentiation. 85j:00098

Stochastic integration with respect to continuous local martingales. 85d:00106

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Letta, G. Intégration stochastique. (Italian summary) [Stochastic integration] 85d:00107

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Sjögren, Peter. Riemann sums for stochastic integrals and  $L^p$  moduli of continuity. 85c:00060

Streit, L. (with Hida, Takeyuki) White noise analysis and its application to Feynman integral. 85j:00100

Szula, J. (with Woyczyński, W. A.) Existence of a double random integral with respect to stable measures. 85j:00101

Taraskin, A. F. The central limit theorem for stochastic integrals. (Russian) 85j:00102

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Vauthier, J. An elementary probabilistic computation of the Poisson kernel for the  $n = 2$  and 3 Euclidean ball. 85c:00061

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Akiyama, Hiroshi. Invariant formulations for stochastic analysis on vector bundles. 85h:58178

Barnett, Christopher (with Streater, R. F.; Wilde, I. F.) Quasifree quantum stochastic integrals for the CAR and CCR. 85b:46079

Chang, Kun Soo (with Ahn, Jae Moon) Translation theorem for conditional Yeh-Wiener integrals. 85j:28012

Chung, Dong M. (with Ahn, Jae Moon) Conditional Yeh-Wiener integrals. 85j:28013



- Darling, R. W. R. Approximating Itô integrals of differential forms and geodesic deviation. **85f:58122**
- Dellacherie, C. (with Meyer, Paul-André) ★ Probabilities and potential. B. **85e:60001**
- Enchev, Ognian Differential calculus for Gaussian random measures. **85b:60053**
- Imkeller, Peter Local times for a class of multiparameter processes. **85k:60068**
- Janson, Svante (with Wichura, Michael J.) Invariance principles for stochastic area and related stochastic integrals. **85f:60051**
- Kondo, Ryoji Möbius-invariant diffusion processes on the unit ball of  $C^n$ . **85j:58148**
- Körsiöglu, H. Nonlinear filtering equation for Hilbert space valued processes. **85m:60080**
- Kotelenez, Peter Continuity properties of Hilbert space valued martingales. **85m:60075**
- Kusuoka, Shigeo On the absolute continuity of the law of a system of multiple Wiener integral. **85h:60121**
- Maejima, Makoto On a class of self-similar processes. **85d:60098**
- Meyer, Paul-André See Dellacherie, C., **85e:60001**
- Ocone, Daniel Malliavin's calculus and stochastic integral representations of functionals of diffusion processes. **85m:60101**
- Ogura, Hisaao Wiener-Hermite expansion-theory and applications. (Japanese) **85c:93168**
- Parthasarathy, Kalyanapuram Rangachari A remark on the integration of Schrödinger equation using quantum Itô's formula. **85j:81015**
- Schott, R. Une loi du logarithme itéré pour certaines intégrales stochastiques. [A law of iterated logarithm for certain stochastic integrals] **85d:60155**
- Streater, R. F. Quantum stochastic integrals. (See **85m:81005**)
- See also Barnett, Christopher; et al., **85b:46079**
- Stricker, C. Semimartingales gaussiennes—application au problème de l'innovation. (English summary) [Gaussian semimartingales—application to the innovation problem] **85c:60054**
- Taqqu, Murad S. (with Wolpert, Robert) Infinite variance self-similar processes subordinate to a Poisson measure. **85b:60056**
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- Yan, Jia An ★ Yang yu sui jifen yinlun. (Chinese) [Introduction to martingales and stochastic integrals] **85g:60058**
- 60H07 Stochastic calculus of variations**
- Gaveau, Bernard (with Moulinier, Jean-Marc) Intégrales oscillantes stochastiques: estimation asymptotique de fonctionnelles caractéristiques. (English summary) [Oscillatory stochastic integrals: asymptotic estimation of characteristic functionals] **85m:60099**
- Kusuoka, Shigeo The Malliavin calculus and the hypoellipticity of second order degenerate elliptic differential operators. **85m:60100**
- Moulinier, Jean-Marc See Gaveau, Bernard, **85m:60099**
- Ocone, Daniel Malliavin's calculus and stochastic integral representations of functionals of diffusion processes. **85m:60101**
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- Chaleyat-Maurel, Mireille Robustesse en théorie du filtrage non linéaire et calcul des variations stochastiques. (English summary) [Robustness in nonlinear filtering theory and in the stochastic calculus of variations] **85e:60053**
- Taniguchi, Setsuo Malliavin's stochastic calculus of variations for manifold-valued Wiener functionals and its applications. **85d:58088**
- 60H10 Stochastic ordinary differential equations** [See also 34F05.]
- Adomian, George A. (with Bellomo, N.; Riganti, Riccardo) Semilinear stochastic systems: analysis with the method of the stochastic Green's function and application in mechanics. **85b:60060**
- (with Rach, Randolph) On nonzero initial conditions in stochastic differential equations. **85i:60054**
- Ahlbrendt, Norbert (with Kempe, Volker) ★ Analyse stochastischer Systeme. (German) [Analysis of stochastic systems] **85h:60083**
- Akashi, Hajime See Terashima, Kasuhiko, **85d:60117**
- Banal, Nozar (with Brenig, Léon) A nonlinear stochastic differential equation: exact critical statics and dynamics. **85j:60104**
- Barlow, M. T. (with Perkins, Edwin) One-dimensional stochastic differential equations involving a singular increasing process. **85k:60075**
- Bellomo, N. See Adomian, George A.; et al., **85b:60060**
- Ben Arous, G. Équations stochastiques à coefficients analytiques et séries de Taylor stochastiques. [Stochastic equations with analytic coefficients and stochastic Taylor series] **85d:60109**
- Bobrik, R. V. An approach to determination of moment functions of linear differential equations with random parameters. (Russian) **85k:60076**
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- Brodaik, Ya. S. (with Lukacher, B. Ya.) Limit theorems for solutions of differential equations with a random right-hand side. (Russian. English summary) **85a:60063**
- Chandra, Jagdish (with Ladde, G. S.; Lakshmikantham, V.) On the fundamental theory of nonlinear second order stochastic boundary value problems. **85f:60080**
- Cho, Chu Kyung On normal diffusion processes in a Hilbert space. (Korean. English summary) (Not in MR)
- Freidlin, M. I. (with Venttsel', A. D.) ★ Random perturbations of dynamical systems. **85a:60064**
- Funaki, Tadahisa Random motion of strings and related stochastic evolution equations. **85g:60063**
- Gabetta, E. (with Toscani, G.) Stochastic stability of a class of linear dynamical systems. **85d:60110**
- Gal'chuk, L. I. On the pathwise uniqueness of solutions of stochastic integral equations driven by martingales. **85k:60077**
- Garrido, Luis See Masoliver, J., **85h:60065**
- Hernández-Machado, A. (with San Miguel, M.) Dynamical properties of non-Markovian stochastic differential equations. **85e:60063**
- Hoover, Douglas N. (with Perkins, Edwin) Nonstandard construction of the stochastic integral and applications to stochastic differential equations. I, II. **85d:60111**
- Huang, Zhi Yuan A comparison theorem for solutions of stochastic differential equations and its applications. **85m:60102**
- Isobe, Etsuo (with Sato, Shunsuke) Wiener-Hermite expansion of a process generated by an Itô stochastic differential equation. **85c:60086**
- Kempe, Volker See Ahlbrendt, Norbert, **85h:60083**
- Konecny, Franz On Wong-Zakai approximation of stochastic differential equations. **85j:60105**
- Kociek, S. A. Stochastic solutions to partial differential equations. **85j:60100**
- Kul'nic, G. L. (with Petrov, I. B.) Limit behavior of the modulus of part of the components of a system of Itô stochastic diffusion equations. (Russian) **85h:60084**
- Kuhsner, Harold J. Robustness and approximation of escape times and large deviations estimates for systems with small noise effects. **85m:60103**
- Ladde, G. S. (with Sambandham, M.) Error estimates of solutions and mean of solutions of stochastic differential systems. **85d:60113**
- Stochastic boundary value problems with applications. **85m:60104**
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- Lakshmikantham, V. Stochastic boundary value problems. **85j:60107**
- See also Chandra, Jagdish; et al., **85f:60080**
- Lebedev, V. A. Absence of an explosion for the solution of a stochastic equation with respect to a martingale and a random measure. (Russian. English summary) **85e:60064**
- On nonexplosion for the solution of a stochastic differential equation. **85d:60113**
- Le Doan Hong Stochastic perturbations of almost periodic solution for singularly perturbed systems. **85e:60063**
- Lin, Bo Ming On the existence and uniqueness of solutions of stochastic differential equations with semimartingales. (Chinese. English summary) **85a:60065**
- Lions, Pierre-Louis (with Sanitman, A. S.) Stochastic differential equations with reflecting boundary conditions. **85m:60105**
- Loparo, Kenneth A. Stochastic stability of coupled linear systems: a survey of methods and results. **85i:60055**
- Lukacher, B. Ya. See Brodaik, Ya. S., **85a:60063**
- Malliavin, Paul Calcul des variations stochastiques subordonné au processus de la chaleur. (English summary) [Stochastic calculus of variation on the heat semigroup] **85a:60066**
- Mao, Xue Rong See Wu, Rang Quan, **85e:60066**
- Masoliver, J. (with Garrido, Luis) General transformations from multiplicative noise to additive noise. **85h:60085**
- Me'n'ik, S. A. Smoothness of solutions of stochastic equations of parabolic type. (Russian) **85a:60067**
- Menaldi, J.-L. (with Robin, M.) Processus de diffusion réfléchis avec sauts. (English summary) [Reflected diffusion process with jumps] **85e:60065**
- Nakano, Yuji (with Okabe, Yasunori) On a 2-dimensional  $[\alpha, \beta, \gamma]$ -Langevin equation. **85m:60106**
- (with Okabe, Yasunori) On a multidimensional  $[\alpha, \beta, \gamma]$ -Langevin equation. **85d:60114**
- Nakao, Shintaro On pathwise uniqueness and comparison of solutions of one-dimensional stochastic differential equations. **85f:60081**
- Nowak, Andrzej On generalized random differential equations. **85d:60115**
- Okabe, Yasunori See Nakano, Yuji, **85d:60114** and **85m:60106**
- Perkins, Edwin See Hoover, Douglas N., **85d:60111** and Barlow, M. T., **85k:60075**
- Petrov, I. B. See Kul'nic, G. L., **85h:60084**
- Platen, Eckhard (with Wagner, Wolfgang) On a Taylor formula for a class of Itô processes. **85m:60107**
- Protter, Philip Point process differentials with evolving intensities. **85m:60108**
- Rach, Randolph See Adomian, George A., **85i:60054**
- Riganti, Riccardo See Adomian, George A.; et al., **85b:60060**
- Robin, M. See Menaldi, J.-L., **85e:60065**
- Rosendin, J. B. T. M. Some additional remarks on the cumulant expansion for linear stochastic differential equations. **85i:60056**
- Rozovskii, B. L. ★ Эволюционные стохастические системы. (Russian) [Stochastic evolution systems] **85k:60078**
- Sagués, F. (with San Miguel, M.; Sancho, J. M.) Non-Markovian dynamics of stochastic differential equations with quadratic noise. **85h:60086**
- Sambandham, M. See Ladde, G. S., **85d:60113**
- Sancho, J. M. Stochastic processes driven by dichotomous Markov noise: some exact dynamical results. **85d:60116**
- See also Sagués, F.; et al., **85h:60086**
- San Miguel, M. See Hernández-Machado, A., **85e:60063** and Sagués, F.; et al., **85h:60086**
- Sato, Shunsuke See Isobe, Etsuo, **85c:60086**
- Scheutsov, M. S. Qualitative behaviour of stochastic delay equations with a bounded memory. **85h:60067**
- Selts, K. Transformation properties of stochastic differential equations. **85f:60082**
- Skorokhod, A. V. ★ Стохастические уравнения для сложных систем. (Russian) [Stochastic equations for complex systems] **85k:60079**
- Sanitman, A. S. See Lions, Pierre-Louis, **85m:60105**
- (Sáček, Josef M.) See Freidlin, M. I., **85a:60064**
- Talay, Denis How to discretize stochastic differential equations. **85g:60064**
- Résolution trajectorielle et analyse numérique des équations différentielles stochastiques. (English summary) [Pathwise solution and numerical analysis of stochastic differential equations] **85j:60108**

- Tsuruhama, Kazuhiko (with Akashi, Hajime) Lie algebraic approach to explicit solution of bilinear stochastic differential equations. 85d:60117
- Toezani, G. See Gabetta, E., 85d:60110
- Tsuz'kov, E. F. (with Yanson, V. A.) Construction of the Lyapunov function for linear stochastic differential equations with periodic coefficients. (Russian) 85j:60109
- Tudor, Constantin Sur les solutions fortes des équations différentielles stochastiques. (English summary) [Strong solutions of some stochastic differential equations] 85h:60088
- Üstünel, A. S. Stochastic Feynman-Kac formula. 85j:60110  
Some applications of stochastic calculus on the nuclear spaces to the nonlinear problems. 85f:60083
- Venttsel', A. D. See Freidlin, M. L., 85a:60064
- Verevnikov, A. Ju. Approximation of ordinary differential equations by stochastic ones. (Russian) 85c:60067
- "Inverse diffusion" and direct derivation of stochastic Liouville equations. (Russian) 85g:60085
- Wagner, Wolfgang See Platen, Eckhard, 85m:60107
- Watanabe, Hideo A note on the weak convergence of solutions of certain stochastic ordinary differential equations. 85h:60089
- Watanabe, Shinso Stochastic flows of diffeomorphisms. 85h:60090
- Wu, Rang Quan (with Mao, Xue Rong) Existence and uniqueness of the solutions of stochastic differential equations. 85c:60086
- Yanson, V. A. See Tsuz'kov, E. F., 85j:60109
- Zabczyk, Jerzy Stationary distribution for linear equations driven by general noise. (Russian summary) 85f:60084

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- Applebaum, D. (with Hudson, R. L.) Fermion diffusions. 85c:81033
- Arnold, Ludwig (with Wihstutz, V.) Wide sense stationary solutions of linear systems with additive noise. 85b:60031
- Berger, Marc Aron (with Sloan, Alan D.) Explicit solutions of partial differential equations. 85f:35041
- Bertrand, Jacqueline (with Rideau, G.) Stochastic processes and the evolution of quantum observables. 85m:81048
- Bitopol'ska, Ya. I. (with Daletskii, Yu. L.) Probabilistic methods in the theory of nonlinear diffusion equations and systems. (Russian) 85m:35064
- Borkar, Vivek S. A note on controlled diffusions on line with time-averaged cost. 85j:93072
- Carverhill, A. P. (with Elworthy, K. D.) Flows of stochastic dynamical systems: the functional analytic approach. 85a:58101
- Chiang, Tzu Shu (with Hwang, Chii-Ruey) On the nonuniqueness of the limit points of diffusions with a small parameter. 85b:60073
- Dębrowski, Jacek Existence of optimal controls for partially observed general solutions of stochastic differential equations. 85h:93087
- Daletskii, Yu. L. See Bitopol'ska, Ya. I., 85m:35064
- De Blasi, F. S. (with Myjak, József) On the nonexistence of solutions for random differential equations in Banach spaces. 85c:34065
- Elworthy, K. D. See Carverhill, A. P., 85a:58101
- Flicker, Hans-Jürgen Zur Berechnung der Erwartungswertfunktion von Lösungen gewöhnlicher Differentialgleichungen mit zufälligen Koeffizienten. [Computing the expected value function of solutions of ordinary differential equations with random coefficients] 85b:34067
- Fomin, V. N. See Makarov, A. P., 85k:34145
- Gabetta, E. Stability in the mean of some random linear systems with random coefficients in mechanics. (Italian summary) 85f:70047
- Gandolfi, A. (with Germani, A.) On the definition of a topology in Hilbert spaces with applications to the white noise theory. 85c:93045
- Germani, A. See Gandolfi, A., 85c:93045
- Hegerfeldt, Gerhard C. (with Reibold, Reinhard) Stochastic aspects in the theory of spectral-line broadening. I. Collision time statistics and  $N$ -perturber limit. 85d:82074a  
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- Hu, Xuan Da On the existence of stochastic Lyapunov functions. (Chinese) 85a:93162
- Hudson, R. L. See Applebaum, D., 85c:81033
- Hwang, Chii-Ruey See Chiang, Tzu Shu, 85b:60073
- Inoue, Masaaki A Markov process associated with a porous medium equation. 85m:60122
- Itô, Kiyosi A stochastic differential equation in infinite dimensions. 85c:60050
- Kallianpur, G. (with Karandikar, Rajeeva L.) Some recent developments in nonlinear filtering theory. 85f:60083
- van Kampen, N. G. See Sibani, P., 85d:82056
- Karandikar, Rajeeva L. Interchanging the order of stochastic integration and ordinary differentiation. 85j:60098  
See also Kallianpur, G., 85f:60083
- Khrennikov, A. Yu. The Dirichlet problem in a Banach space. (Russian) 85g:35116
- Klauder, John R. Stochastic phenomena in physics. 85i:81039
- Knobloch, Edgar (with Wiesenfeld, Kurt) Bifurcations in fluctuating systems: the center-manifold approach. 85i:58091
- Kufnich, G. L. Limit behaviour of solutions of stochastic diffusion equations when the convergence of the coefficients is nonregular. 85h:60117  
Limit behavior of a random harmonic oscillator. (Ukrainian. Russian summary) 85c:70030
- Machček, M. Stationary probability distribution for nonlinear dynamical systems with noise. 85g:70031
- Makarov, A. P. (with Fomin, V. N.) Parametric resonance of linear systems under the action of finitely correlated perturbation. (Russian) 85k:34145
- Malakhov, A. N. (with Musychuk, O. V.) Structure of statistical relations between a Gaussian random perturbation and the output coordinate of a stochastic system. 85k:34146
- Matkowsky, B. J. (with Schuss, Z.) On the lifetime of a metastable state at low noise. 85c:82043
- Melnik, S. A.  $\epsilon$ -optimal control of the solution of an evolution equation in a Banach space. (Russian) 85i:49006
- Melnikov, A. V. Stochastic equations and Krylov's estimates for semimartingales. 85j:60113
- Musychuk, O. V. See Malakhov, A. N., 85k:34146
- Myjak, József See De Blasi, F. S., 85c:34065
- Nogueira, Arnaldo C. R. Asymptotic analysis of random evolutions with an application to quantum mechanics. (Portuguese) 85j:60118
- Papiez, Lech The limit diffusion mechanism of relaxation for spin systems. 85c:82034
- Reibold, Reinhard See Hegerfeldt, Gerhard C., 85d:82074a and 85d:82074b
- Rideau, G. See Bertrand, Jacqueline, 85m:81048
- Riganti, Riccardo Transient behaviour of semilinear stochastic systems with random parameters. 85f:34105
- Rybaczuk, A. V. Random oscillations of a quasilinear system with two degrees of freedom. (Russian) 85k:34085
- Sancho, J. M. (with San Miguel, M.) Stochastic differential equations: white and colored noise. (Spanish) (See 85h:60011b)
- San Miguel, M. See Sancho, J. M., (85h:60011b)
- Schuss, Z. See Matkowsky, B. J., 85c:82043
- Sibani, P. (with van Kampen, N. G.) An exactly soluble relaxation problem. 85d:82056
- Sloan, Alan D. See Berger, Marc Aron, 85f:35041
- Thomas, A. Itô's theorem and stochastic simulation. 85m:82119
- Ugrinovskii, V. A. Investigation of the absolute stability of nonlinear stochastic systems. (Russian) (See 85d:60026)
- Wiesenfeld, Kurt See Knobloch, Edgar, 85i:58091
- Wihstutz, V. See Arnold, Ludwig, 85b:60031
- Zhaurov, Yu. V. Asymptotic behavior of solutions of a two-point problem for a differential equation with rapidly oscillating random coefficients. (Russian) 85d:34062

## 60H15 Stochastic partial differential equations [See also 35R60.]

- Balakrishnan, A. V. On abstract stochastic bilinear equations with white noise inputs. 85j:60111
- Benaï, Albert Théorème central limite de renormalisation pour des processus d'Ornstein-Uhlenbeck généralisés. [Central limit theorem of renormalization for generalized Ornstein-Uhlenbeck processes] 85c:60067
- Bichteler, Klaus (with Fonken, David) A simple version of the Malliavin calculus in dimension  $N$ . 85f:60085
- Chitashvili, R. Ya. Existence of an innovation process for a class of Itô processes. (Russian) 85d:60118
- Fonken, David See Bichteler, Klaus, 85f:60085
- Gikhman, Il. I. (with Mestechkina, T. M.) The Cauchy problem for stochastic first-order partial differential equations. (Russian) 85g:60067  
A variant of two-parameter diffusion. (Russian. English summary) 85g:60066
- Hida, Takeyuki Causal calculus and an application to prediction theory. 85k:60080
- Ichikawa, Akira Semilinear stochastic evolution equations: boundedness, stability and invariant measures. 85m:60109
- Jetschke, G. (with Linde, Werner; Manthey, R.) On stochastic partial differential equations of parabolic type. 85b:60061
- Kislenko, S. S. Existence of solutions of stochastic differential equations of hyperbolic type with coefficients depending on the "past". (Russian) 85d:60119
- Komech, A. I. See Vishik, M. I., 85h:60092
- Kunita, Hiroshi Stochastic partial differential equations connected with nonlinear filtering. 85c:60068
- Linde, Werner See Jetschke, G.; et al., 85b:60061
- Makhno, S. Ya. Boundary value problems for stochastic partial differential equations. (Russian) 85k:60081
- Manthey, R. See Jetschke, G.; et al., 85b:60061
- Melnik, S. A. Finite-difference approximation of the solution of a stochastic evolution equation. (Russian) 85k:60082
- Mestechkina, T. M. See Gikhman, Il. I., 85g:60067
- Pyasetskaya, T. E. A semilinear stochastic hyperbolic equation with two-parameter white noise. (Russian) 85g:60068
- Real Angus, José Some questions of stability for stochastic partial differential equations with delay. (Spanish) 85j:60112
- Sheu, Shuenn Jyi Solution of certain parabolic equations with unbounded coefficients and its application to nonlinear filtering. 85d:60120
- Shimizu, Akinozu Fundamental solutions of stochastic partial differential equations arising in nonlinear filtering theory. 85h:60091
- Stroock, Daniel W. Some applications of stochastic calculus to partial differential equations. 85c:60088
- Vishik, M. I. (with Komech, A. I.) Strong solutions of a two-dimensional stochastic Navier-Stokes system and corresponding Kolmogorov equations. (Russian. English and German summaries) 85h:60092

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- Adomian, George A. A new approach to nonlinear partial differential equations. 85j:35199
- Chow, P. L. (with Menaldi, J.-L.) Method of regularization for second-order stochastic evolution equations. 85j:35200
- Dell'Antonio, G. F. Large time, small coupling behaviour of a quantum particle in a random field. (French summary) 85g:82063
- Divnich, N. T. Limit behavior of the solution of the Cauchy problem for the heat equation with random right-hand side. (Russian) 85g:35125

- Hu, Xuan Da (with Yu, Zhong Ming) Comparison theorems and stochastic boundedness. (Chinese) **85a:35010**
- Komech, A. I. See Vishik, M. I., **85k:35195** and **85k:35196**
- Kozlov, S. M. See Zhikov, V. V.; et al., **85k:35024**
- Ladde, G. S. Stochastic boundary value problems with applications. **85m:60104**
- Menaldi, J.-L. See Chow, P. L., **85j:35200**
- Mishchenko, A. S. (with Sharipov, F.) Independence of the spectrum of an elliptic operator with random coefficients. (Russian) **85h:35230**
- Oleinik, O. A. See Zhikov, V. V.; et al., **85k:35024**
- Sagués, F. A Fokker-Planck approach for stochastic differential equations with exponential noise. **85i:62016**
- Sasagawa, Fumiyoshi Critical slowing down in random growing-rate models with general two-level Markov noise. **85c:82035**
- Sharipov, F. See Mishchenko, A. S., **85h:35230**
- Tsutsui, Seiji Convergence of statistical finite element solutions of the heat equation with a random initial condition. **85a:65163**
- Thompson, Mark The state density of elliptic operators with random potentials. **85k:35177**
- Veretennikov, A. Ju. Probabilistic approach to hypoellipticity. (Russian) **85c:35029**
- Vishik, M. I. (with Komech, A. I.) Statistical solutions of the Navier-Stokes and Euler equations. (Russian. English summary) **85k:35195**
- (with Komech, A. I.) Kolmogorov equations corresponding to a two-dimensional stochastic Navier-Stokes system. (Russian) **85k:35196**
- Yu, Zhong Ming See Hu, Xuan Da, **85a:35010**
- Zhikov, V. V. (with Kozlov, S. M.; Oleinik, O. A.) Averaging of parabolic operators. (Russian) **85k:35024**

## 60H20 Stochastic integral equations

- Bharucha-Reid, A. T. (with Christensen, M. J.) Approximate solution of random integral equations: general methods. **85m:60110**
- Christensen, M. J. See Bharucha-Reid, A. T., **85m:60110**
- Fedorenko, I. V. Existence of solutions of stochastic Itô-Volterra integral equations. (Russian) **85e:60069**
- Gal'chuk, L. I. Strong convergence of the solution of a stochastic integral equation with respect to components of a semimartingale. (Russian) **85h:60093**
- Klepetsyna, M. L. (with Veretennikov, A. Ju.) Strong solutions of Itô-Volterra stochastic equations. (Russian. English summary) **85f:60066**
- Strong solutions of stochastic equations with degenerate coefficients. (Russian) **85m:60111**
- Kolodii, A. M. Existence of solutions of stochastic Volterra integral equations. (Russian) **85f:60087**
- Mao, Xue Rong Liouville's formula for stochastic integral equations. (Chinese. English summary) **85g:60069**
- Existence and uniqueness of solutions of stochastic integral equations with respect to semimartingales. (Chinese. English summary) **85h:60094**
- Melnikov, A. V. Stochastic equations and Krylov's estimates for semimartingales. **85j:60113**
- Pianeta, S. L. Processes of diffusion type in a Hilbert space. (Russian) **85d:60121**
- Platen, Eckhard Approximation of first exit times of diffusions and approximate solution of parabolic equations. **85h:60095**
- Richter, Gerhard Asymptotische Verteilung der Lösung Fredholmischer Integralgleichungen zweiter Art mit zufälligen, ausgearteten Kernen. [Asymptotic distribution of the solution of Fredholm integral equations of the second kind with stochastic, degenerate kernels] **85j:60114**
- Rodkina, A. E. On existence and uniqueness of solution of stochastic differential equations with heredity. **85m:60112**
- Tudor, Constantin (with Tudor, Maria) On approximation in quadratic mean for the solutions of two parameter stochastic differential equations in Hilbert spaces. **85j:60115**
- A class of nonlinear stochastic evolution equations. **85h:60096**
- Delayed approximations and weak solutions for two-parameter stochastic integral equations. **85a:60068**
- Abstract Wiener process with two parameters and related stochastic integral equations. (Romanian. English summary) **85j:60116**
- Tudor, Maria See Tudor, Constantin, **85j:60115**
- Veretennikov, A. Ju. See Klepetsyna, M. L., **85f:60066**

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- Day, Martin V. Comparison results for diffusions conditioned on positivity. **85e:60077**
- Dokuchaev, N. G. Moments of first exit for processes of diffusion type. (Russian. English summary) **85k:60111**
- Gal'chuk, L. I. On the pathwise uniqueness of solutions of stochastic integral equations driven by martingales. **85k:60077**
- Hitsuda, Masuyuki Central limit theorem for a simple interacting diffusion model and  $S^1$ -valued processes. **85i:60042**
- Phan Văn Chu'o'ng Sur l'existence des solutions d'une équation intégrale multivoque à paramètre aléatoire. (English summary) [Existence of solutions for a multivalued integral equation with random parameter] **85a:45010**
- Portenko, N. I. ★Обобщенные диффузионные процессы. (Russian) [Generalized diffusion processes] **85f:60116**

## 60H25 Random operators and equations

- Acquistapace, Paolo (with Terreni, Brunello) An approach to Itô linear equations in Hilbert spaces by approximation of white noise with coloured noise. **85k:60083**
- Baklan, V. V. Analytic properties of a stochastic semigroup. (Russian) **85g:60070a**
- Balakrishna Reddy, K. (with Rangachari, M. S.; Subrahmanyam, P. V.) Matkowski's fixed point theorem and random operators. (See **85a:60011**)

- Butsen, G. P. Primitive semigroups for a class of stochastic semigroups. (Russian) **85g:60070b**
- A class of stochastic semigroups. (Russian) **85k:60084**
- Chalka, O. G. See Girko, V. L.; et al., **85k:60085**
- Chani, A. S. Integral representation of stochastic semigroups. (Russian) **85a:60069**
- Stochastic semigroups without discontinuities of the second kind. (Russian) **85g:60070c**
- Delyon, François (with Souillard, Bernard) The rotation number for finite difference operators and its properties. **85d:60123**
- Ding, Xie Ping Existence, uniqueness and approximation of solutions for a system of nonlinear random operator equations. **85f:60068**
- Engl, H. W. (with Römisch, Werner) Convergence of approximate solutions of nonlinear random operator equations with nonunique solutions. **85b:60062**
- Franks, Martin (with Synal, D.) Fixed-point theorems for continuous mappings on complete, normed-in-probability spaces. (Russian and Polish summaries) **85h:60097**
- Girko, V. L. Spectral theory of nonselfadjoint random matrices. **85m:60113**
- (with Kokobinadze, T. S.; Chalka, O. G.) Distribution of eigenvalues of Gaussian random matrices. (Russian) **85k:60085**
- Kirilov, P. V. ★Случайные уравнения. (Russian) [Random equations] **85b:60063**
- Kokobinadze, T. S. See Girko, V. L.; et al., **85k:60085**
- Lacroix, J. Problèmes probabilistes liés à l'étude des opérateurs aux différences aléatoires. [Probabilistic problems related to the study of random difference operators] **85j:60117**
- Lyatambur, K. N. A condition for the convergence of products of random operators. (Russian) **85k:60086**
- Molchanov, S. A. (with Seidel, Heidrun) Spectral properties of the general Sturm-Liouville equation with random coefficients. I. **85b:60064**
- Nogueira, Arnaldo C. R. Asymptotic analysis of random evolutions with an application to quantum mechanics. (Portuguese) **85j:60118**
- Asymptotic analysis of a certain random differential equation. **85m:60114**
- Pakes, Anthony G. Some properties of a random linear difference equation. **85f:60090**
- Rach, Randolph A convenient computational form for the Adomian polynomials. **85k:60087**
- Rangachari, M. S. See Balakrishna Reddy, K.; et al., (**85a:60011**)
- Römisch, Werner See Engl, H. W., **85b:60062**
- Seidel, Heidrun See Molchanov, S. A., **85b:60064**
- Simon, Barry Kotani theory for one-dimensional stochastic Jacobi matrices. **85d:60123**
- Singh, Harinder On some regularity properties of quadratic stochastic processes. **85d:60124**
- Shorokhod, A. V. Stochastic semigroups and linear stochastic equations. (Russian) **85g:60070d**
- Demi-groupes stochastiques de Hilbert-Schmidt et équations différentielles linéaires stochastiques. (English summary) [Stochastic semigroups of Hilbert-Schmidt type and linear stochastic differential equations] **85g:60070e**
- Products of independent random operators. (Russian) **85f:60090**
- ★ Random linear operators. **85a:60070**
- Théorie générale des demi-groupes stochastiques linéaires. (English summary) [General theory of stochastic linear semigroups] **85c:60089**
- Souillard, Bernard See Delyon, François, **85d:60123**
- Subrahmanyam, P. V. See Balakrishna Reddy, K.; et al., (**85a:60011**)
- Synal, D. See Franks, Martin, **85h:60097**
- Terreni, Brunello See Acquistapace, Paolo, **85k:60083**
- Zhang, Shi Sheng Erratum: "Random fixed point theorem in probabilistic analysis" [Nonlinear Anal. 5 (1981), no. 2, 113-122; MR 82c:60114]. **85h:60098**
- Zhaurov, Yu. V. Averaging of equations with random operators. (Russian) **85g:60071**

## secondary classifications (60H25)

- Bentoela, F. (with Carmona, R.; Duclos, P.; Simon, Barry; Souillard, Bernard; Weder, R.) Schrödinger operators with an electric field and random or deterministic potentials. **85f:34036**
- Carmeli, M. ★Statistical theory and random matrices. **85c:82001**
- Carmona, R. See Bentoela, F.; et al., **85f:34036**
- Chen, Shao Zhong See Liu, Zuo Shu, (Not in MR)
- Craig, Walter (with Simon, Barry) Log Hölder continuity of the integrated density of states for stochastic Jacobi matrices. **85k:47012**
- Ding, Xie Ping Common fixed point theorems for commuting mappings in probabilistic metric spaces. (Chinese) (Not in MR)
- Duclos, P. See Bentoela, F.; et al., **85f:34036**
- Fröhlich, J. (with Spencer, T.) Absence of diffusion in the Anderson tight binding model for large disorder or low energy. **85c:82004**
- Grenkova, L. N. (with Molchanov, S. A.; Sudarev, Yu. N.) On the basic states of one-dimensional disordered structures. **85b:32058**
- Hasegawa, Hiroshi (with Streeter, R. F.) Stochastic Schrödinger and Heisenberg equations: a martingale problem in quantum stochastic processes. **85d:82052**
- Holden, Helge See Martinelli, Fabio, **85m:82103**
- Keepler, Manuel On the Griego-Hersh approach to random evolutions. **85i:60073**
- Kirsch, W. (with Martinelli, Fabio) Large deviations and Lifshits singularity of the integrated density of states of random Hamiltonians. **85c:82056**
- Kozlov, S. M. (with Shubin, M. A.) Coincidence of spectra of random elliptic operators. (Russian) **85i:35149**
- Kushner, Harold J. Robustness and approximation of escape times and large deviations estimates for systems with small noise effects. **85m:60103**
- Liu, Zuo Shu (with Chen, Shao Zhong) A fixed point theorem for random set-valued mappings. (Chinese) (Not in MR)
- Lopes, Artur Oscar Bounded random perturbations of the Liapounov number. **85g:60020**
- Martinelli, Fabio (with Holden, Helge) On absence of diffusion near the bottom of the spectrum for a random Schrödinger operator on  $L^2(\mathbb{R}^n)$ . **85m:82103**
- See also Kirsch, W., **85c:82056**



- Melchanov, S. A. See Grenkova, L. N.; et al. 85b:32058  
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 Sehgal, V. M. (with Waters, Charlie) Some random fixed point theorems for condensing operators. 85g:47083  
 Shubin, M. A. See Koslov, S. M. 85i:35149  
 Simon, Barry See Bentoosla, F.; et al. 85f:34036 and Craig, Walter, 85k:47012  
 Souillard, Bernard See Bentoosla, F.; et al. 85f:34036  
 Spencer, T. See Fröhlich, J. 85c:82004  
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Abraham, B. (with Ledolter, Johannes) ★ Statistical methods for forecasting. 85c:62230  
Anatryan, V. I. ★ Теория планирования эксперимента. (Russian) [Theory of designing experiments] 85g:62130

Chistyakov, V. P. See Zakharov, V. K.; et al., 85a:60009

Dacunha-Castelle, Didier (with Duflou, Marie) ★ Probabilités et statistiques. Tome 2. (French) [Probability and statistics. Vol. 2] 85k:60001

Duflou, Marie See Dacunha-Castelle, Didier, 85k:60001

(Embarek, Djilali) See Korolyuk, V. S.; et al., 85a:60003

Gmurman, V. E. ★ Теория дад вероятностите е статистика математика. (Portuguese) [Probability theory and mathematical statistics] 85a:60001

(Guar, Beserra, Felix Valois) See Gmurman, V. E., 85a:60001

Klimov, G. P. ★ Теория вероятностей и математическая статистика. (Russian) [Probability theory and mathematical statistics] 85m:60001

Korolyuk, V. S. (with Portenko, N. I.; Skorokhod, A. V.; Turbin, A. F.) ★ Aide-mémoire de théorie des probabilités et de statistique mathématique. (French) [Handbook on probability theory and mathematical statistics] 85a:60003

Kahrisagar, Anant M. ★ A course in linear models. 85c:62183

Ledolter, Johannes See Abraham, B., 85c:62230

Maybeck, Peter S. ★ Stochastic models, estimation, and control. Vol. 2. 85a:93134a

★ Stochastic models, estimation, and control. Vol. 3. 85a:93134b

Portenko, N. I. See Korolyuk, V. S.; et al., 85a:60003

Ross, Sheldon ★ Introduction to probability models. 85j:60002

Sevast'yanov, B. A. See Zakharov, V. K.; et al., 85a:60009

Skorokhod, A. V. See Korolyuk, V. S.; et al., 85a:60003

Turbin, A. F. See Korolyuk, V. S.; et al., 85a:60003

Zakharov, V. K. (with Sevast'yanov, B. A.; Chistyakov, V. P.) ★ Теория вероятностей. (Russian) [Probability theory] 85a:60009

#### Handbook:

Probability theory and mathematical statistics See Korolyuk, V. S.; et al., 85a:60003

### 62-02 Advanced exposition (research surveys, monographs, etc.)

Chen, Gui Jing (with Wu, Qi Guang; Zhao, Lin Cheng) Some theoretical results of Chinese mathematical statisticians in the past five years. (Chinese) 85k:62002

Cook, R. D. (with Weisberg, Sanford) ★ Residuals and influence in regression. 85g:62001

Kendall, Maurice George (with Stuart, Alan; Ord, J. Keith) ★ The advanced theory of statistics. Vol. 3. 85d:62001

Lehmann, E. L. ★ Theory of point estimation. 85a:62001

Ord, J. Keith See Kendall, Maurice George; et al., 85d:62001

Stuart, Alan See Kendall, Maurice George; et al., 85d:62001

Watanabe, G. S. ★ Statistics on spheres. 85f:62001

Weisberg, Sanford See Cook, R. D., 85g:62001

Wu, Qi Guang See Chen, Gui Jing; et al., 85k:62002

Zhao, Lin Cheng See Chen, Gui Jing; et al., 85k:62002

#### secondary classifications (62-02)

Dshaparidze, K. O. (with Yaglom, A. M.) Spectrum parameter estimation in time series analysis. 85g:62180

Jeffreys, Harold ★ Theory of probability. 85f:60005

Yaglom, A. M. See Dshaparidze, K. O., 85g:62180

### 62-03 Historical (must also be assigned at least one classification number from Section 01)

Baird, David The Fisher/Pearson chi-squared controversy: a turning point for inductive inference. 85a:62002

Greenberg, Bernard G. An appreciation of Norman L. Johnson's contributions to statistics. (See 85d:62004)

(Johnson, Norman Lloyd) See Greenberg, Bernard G., (85d:62004) and Bibliography: Johnson, Norman Lloyd, (Not in MR)

de Leeuw, Jan On the prehistory of correspondence analysis. 85c:62001

Matsunawa, Tadashi Some reflections and historical reviews on the chi-square distribution. (Japanese. English summary) 85d:62002

Plackett, R. L. Karl Pearson and the chi-squared test. (French summary) 85a:62003

#### Bibliography:

Johnson, Norman Lloyd Norman Lloyd Johnson: bibliography. (See 85d:62004)

#### Biography:

Johnson, Norman Lloyd See Greenberg, Bernard G., (85d:62004)

#### secondary classifications (62-03)

Bartlett, M. S. See Kendall, D. G.; et al., 85e:01046

(Boon, H. J.) See Greville, T. N. E., 85e:01060

Cramér, Harald Probabilité mathématique et inférence statistique. Quelques souvenirs personnels sur une importante étape du progrès scientifique. (English summary) [Mathematical probability and statistical inference. Some personal recollections of an important stage in scientific progress] 85a:60010

De Morgan, Augustus ★ An essay on probabilities. 85k:01054

Gnedenko, B. V. Probability theory and mathematical statistics. (Russian) (See 85g:01004)

Greville, T. N. E. ★ Selected papers of T. N. E. Greville. 85e:01060

Heyde, C. C. The sociology of discovery in pre-twentieth-century probability and statistics. I. Period pre-1830. 85a:01032

Hill, I. D. Statistical Society of London—Royal Statistical Society. The first 100 years: 1834-1934. 85m:01104

Kendall, D. G. (with Bartlett, M. S.; Page, T. L.) Jerzy Neyman: 16 April 1894-5 August 1981. 85e:01046

(Kiefer, Jack Carl) See Bibliography: Kiefer, Jack Carl, 85b:01085

Kitagawa, Tosi The forty years of statistical sciences in Japan—my retrospect and prospect. 85a:01045

(Meek, D. S.) See Greville, T. N. E., 85e:01060

Meen, Knut On classical and Bayesian statistics. (Norwegian. English summary) 85m:01046

Neyman, Jerzy The emergence of mathematical statistics. (Bulgarian) 85g:01023

See also Kendall, D. G.; et al., 85e:01046 and Reid, Constance, 85g:01029

Page, T. L. See Kendall, D. G.; et al., 85e:01046

(Penkov, B.) See Neyman, Jerzy, 85g:01023

Plackett, R. L. Royal Statistical Society. The last fifty years: 1934-84. 85m:01105

Reid, Constance ★ Neyman—from life. 85g:01029

Robbins, Herbert Some breakthroughs in statistical methodology. 85f:01023

(Stanton, R. G.) See Greville, T. N. E., 85e:01060

#### Bibliography:

Greville, Thomas N. E. See Greville, T. N. E., 85e:01060

Kiefer, Jack Carl The publications and writings of Jack Kiefer. 85b:01085

Neyman, Jerzy See Kendall, D. G.; et al., 85e:01046

#### Biography:

Greville, Thomas N. E. See Greville, T. N. E., 85e:01060

Neyman, Jerzy See Kendall, D. G.; et al., 85e:01046

### 62-04 Explicit machine computation and programs (not the theory of computation or programming)

(Bijak, Ivan) See Ribarić, Marjan, 85f:62002

(Bonat, Marko) See Ribarić, Marjan, 85f:62002

(Causinus, H.) See Compstat, 85f:62003a and 85f:62003b

(Ettinger, P.) See Compstat, 85f:62003a and 85f:62003b

Friedman, Hershey H. See Friedman, Linda Weiser, (Not in MR)

Friedman, Linda Weiser (with Friedman, Hershey H.) Statistical considerations in computer simulation: the state of the art. (Not in MR)

(Gaborov, Zoran) See Ribarić, Marjan, 85f:62002

(Ipavec, Pavel) See Ribarić, Marjan, 85f:62002

Ivanov, V. V. (with Korzhova, V. N.) Optimization of algorithm estimation of certain probabilistic characteristics. (Not in MR)

Korzhova, V. N. See Ivanov, V. V., (Not in MR)

(Lakner, Mijla) See Ribarić, Marjan, 85f:62002

(Mathieu, J. R.) See Compstat, 85f:62003b

(Mitrovic, Boris) See Ribarić, Marjan, 85f:62002

Moran, P. A. P. The Monte Carlo evaluation of orthonormal probabilities for multivariate normal distributions. 85k:62003

Murray, Gordon D. Nonconvergence of the minimax order algorithm. 85a:62004

(Radai, Zoran) See Ribarić, Marjan, 85f:62002

Ribarić, Marjan ★ Computational methods for parsimonious data fitting. 85f:62002

(Škoberne, Primož) See Ribarić, Marjan, 85f:62002

(Šmuc, Slavica) See Ribarić, Marjan, 85f:62002

(Stojanovski, Dame) See Ribarić, Marjan, 85f:62002

(Tomassone, Richard) See Compstat, 85f:62003a

(Žek, Božjan) See Ribarić, Marjan, 85f:62002

Compstat ★ Compstat 1982. Part I. 85f:62003a

#### Symposium:

Computational statistics ★ Compstat 1982. Part I. 85f:62003a

Toulouse ★ Compstat 1982. Part I. 85f:62003a

#### secondary classifications (62-04)

Boyles, Russell A. On the convergence of the EM algorithm. 85c:62064

Deken, Joseph G. Approximating conditional moments of the multivariate normal distribution. 85d:62059

Dykstra, Richard L. An algorithm for restricted least squares regression. 85c:62191

Garfinkel, R. S. See Liepins, G. E.; et al., 85d:62008

Glas, C. A. W. See Verbeest, N. D.; et al., (Not in MR)

(Heiner, Karl W.) See Computer science and statistics: proceedings of the 14th symposium on the interface, 85a:62005

Kunnathur, A. S. See Liepins, G. E.; et al., 85d:62008

Liepins, G. E. (with Garfinkel, R. S.; Kunnathur, A. S.) Error localization for erroneous data: a survey. 85d:62008

Lugannani, R. (with Rice, S. O.) Distribution of the ratio of quadratic forms in normal variables—numerical methods. 85b:62382

Pagano, Marcello (with Tritchler, David) On obtaining permutation distributions in polynomial time. 85a:62063



- Petersen, Ivar On the algorithms for parameter estimation in one-dimensional densities and distributions in a general purpose statistical package. (German and Russian summaries) (See 85d:63007) (Not in MR)
- Radner, Richard A. (with Walker, Homer F.) Mixture densities, maximum likelihood and the EM algorithm. 85j:63037
- Rice, S. O. See Luganani, R., 85b:65283
- (Sachar, R. S.) See Computer science and statistics: proceedings of the 14th symposium on the interface, 85a:63005
- Seifert, Burkhardt Estimation and test of variance components using the MINQUE-method. (See 85d:63007) (Not in MR)
- van der Sluis, A. See Verhelst, N. D.; et al., (Not in MR)
- Titchler, David See Pagano, Marcello, 85a:63063
- Verhelst, N. D. (with Glas, C. A. W.; van der Sluis, A.) Estimation problems in the Rasch-model: the basic symmetric functions. (Not in MR)
- Walker, Homer F. See Radner, Richard A., 85j:63037
- Wang, Song Gui The EM algorithm. (Chinese) 85j:63028
- (Wilkinson, John W.) See Computer science and statistics: proceedings of the 14th symposium on the interface, 85a:63005
- Wu, Jing Dong See Zhou, Qing He, (Not in MR)
- Zhou, Qing He (with Wu, Jing Dong) An improvement in computer programs for stepwise discriminant analysis. (Chinese. English summary) (Not in MR)
- Computer science and statistics: proceedings of the 14th symposium on the interface  
★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:63005
- Symposium:  
Interface ★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:63005
- Troy, N.Y. ★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:63005
- 62-06 Proceedings, conferences, etc.
- (Amemiya, Takashi) See Studies in econometrics, time series, and multivariate statistics, 85f:63004
- (Anderson, O. D.) See Time series analysis: theory and practice, 85a:63007 and 85m:63006
- (Anderson, Theodore W.) See Studies in econometrics, time series, and multivariate statistics, 85f:63004
- (Box, G. E. P.) See Scientific inference, data analysis, and robustness, 85g:63004
- (Bunka, Olaf) See Summer school: Problems of model choice and parameter estimation in regression analysis, 85d:62007
- (Chernoff, Herman) See Recent advances in statistics, 85a:63006
- (Crowley, John) See Survival analysis, 85b:63001
- (De Vylder, F.) See Premium calculation in insurance, 85m:63003
- (Fiorensi, J.-P.) See Alternative approaches to time series analysis, 85m:62001
- (Frank, Jürgen) See Robust and nonlinear time series analysis, 85m:62004
- (Goodman, Leo) See Studies in econometrics, time series, and multivariate statistics, 85f:63004
- (Goovaerts, M. J.) See Premium calculation in insurance, 85m:63003
- (Haasendonek, J.) See Premium calculation in insurance, 85m:63003
- (Härdle, W.) See Robust and nonlinear time series analysis, 85m:62004
- (Heller, Siegfried) See Recent trends in statistics, 85g:63003
- (Heiner, Karl W.) See Computer science and statistics: proceedings of the 14th symposium on the interface, 85a:63005
- (Hildenbrand, Werner) See Advances in econometrics, 85d:63003
- (Hinkelmann, Klaus) See Experimental design, statistical models, and genetic statistics, 85m:62002
- (Ibragimov, I. A.) See Studies in mathematical statistics, 85g:62006
- (Johnson, Norman Lloyd) See Contributions to statistics, 85d:62004
- (Johnson, Richard A.) See Survival analysis, 85b:63001
- (Karlin, Samuel) See Studies in econometrics, time series, and multivariate statistics, 85f:63004
- (Kempthorne, Oscar) See Experimental design, statistical models, and genetic statistics, 85m:62002
- (Lens, H.-J.) See Frontiers in statistical quality control, 85g:62002
- (Leonard, Tom) See Scientific inference, data analysis, and robustness, 85g:62004
- (Martin, Douglas) See Robust and nonlinear time series analysis, 85m:62004
- (Mouchart, M.) See Alternative approaches to time series analysis, 85m:62001
- (Nikulin, M. S.) See Studies in mathematical statistics, 85g:62006
- (Raoult, J.-P.) See Alternative approaches to time series analysis, 85m:62001
- (Rivzi, M. Haseeb) See Recent advances in statistics, 85a:63006
- (Rustagi, Jagdish S.) See Recent advances in statistics, 85a:63006 and Optimization in statistics, 85d:62005
- (Sachar, R. S.) See Computer science and statistics: proceedings of the 14th symposium on the interface, 85a:63005
- (Sen, Pranab Kumar) See Contributions to statistics, 85d:62004
- (Siegmund, D.) See Recent advances in statistics, 85a:63006
- (Simar, L.) See Alternative approaches to time series analysis, 85m:62001
- (Smith, James G.) See Statistical signal processing, 85m:62005
- (Wegman, Edward J.) See Statistical signal processing, 85m:62005
- (Wetherill, G. B.) See Frontiers in statistical quality control, 85g:62002
- (Wilkinson, John W.) See Computer science and statistics: proceedings of the 14th symposium on the interface, 85a:63005
- (Wilrich, P.-Th.) See Frontiers in statistical quality control, 85g:62002
- (Wu, Chien Fu Jeff) See Scientific inference, data analysis, and robustness, 85g:62004
- (Zanakis, Stella H.) See Optimization in statistics, 85d:62005
- Advances in econometrics ★ Advances in econometrics. 85d:63003
- Aix-en-Provence ★ Advances in econometrics. 85d:63003
- Alternative approaches to time series analysis ★ Alternative approaches to time series analysis. 85m:62001

Annapolis, Md. ★ Statistical signal processing. 85m:63005

Birthday:

Chernoff, Herman ★ Recent advances in statistics. 85a:63006

Kempthorne, Oscar ★ Experimental design, statistical models, and genetic statistics. 85m:62002

Cincinnati, Ohio ★ 1982 proceedings of the business and economic statistics section, American Statistical Association. 85e:63003a

Columbus, Ohio ★ Survival analysis. 85b:63001

Computer science and statistics: proceedings of the 14th symposium on the interface  
★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:63005

Conference:

Design of experiments ★ Proceedings of the twenty-eighth conference on the design of experiments. 85d:62006

Forecasting ★ Time series analysis: theory and practice. 3. 85a:62007

Scientific inference, data analysis, and robustness ★ Scientific inference, data analysis, and robustness. 85g:62004

Congress:

Econometric Society ★ Advances in econometrics. 85d:63003

Contributions to statistics ★ Contributions to statistics. 85d:62004

Dortmund ★ Recent trends in statistics. 85g:62003

Experimental design, statistical models, and genetic statistics ★ Experimental design, statistical models, and genetic statistics. 85m:62002

Festschrift:

Anderson, Theodore W. ★ Studies in econometrics, time series, and multivariate statistics. 85f:63004

Kempthorne, Oscar ★ Experimental design, statistical models, and genetic statistics. 85m:62002

Frontiers in statistical quality control ★ Frontiers in statistical quality control. 2. 85g:62002

Heidelberg ★ Robust and nonlinear time series analysis. 85m:62004

Kent ★ Frontiers in statistical quality control. 2. 85g:62002

Louvain ★ Premium calculation in insurance. 85m:63003

Madison, Wis. ★ Scientific inference, data analysis, and robustness. 85g:62004

Meeting:

American Statistical Association, business and economic statistics section ★ 1982 proceedings of the business and economic statistics section, American Statistical Association. 85e:63003a

Anglo-German, statistical ★ Recent trends in statistics. 85g:62003

Franco-Belgian, statisticians ★ Alternative approaches to time series analysis. 85m:62001

Survival analysis ★ Survival analysis. 85b:63001

Time series ★ Time series analysis: theory and practice. 7. 85m:62006

Monterey, Calif. ★ Proceedings of the twenty-eighth conference on the design of experiments. 85d:62006

NATO advanced study institute:

Insurance premiums ★ Premium calculation in insurance. 85m:62003

Optimization in statistics ★ Optimization in statistics. 85d:62005

Premium calculation in insurance ★ Premium calculation in insurance. 85m:62003

Proceedings:

Annual meeting of the American Statistical Association, business and economic statistics section ★ 1982 proceedings of the business and economic statistics section, American Statistical Association. 85e:63003a

Business and economic statistics section, American Statistical Association ★ 1982 proceedings of the business and economic statistics section, American Statistical Association. 85e:63003a

Conference on the design of experiments ★ Proceedings of the twenty-eighth conference on the design of experiments. 85d:62006

Recent advances in statistics ★ Recent advances in statistics. 85a:63006

Recent trends in statistics ★ Recent trends in statistics. 85g:62003

Robust and nonlinear time series analysis ★ Robust and nonlinear time series analysis. 85m:62004

Rouen ★ Alternative approaches to time series analysis. 85m:62001

Scientific inference, data analysis, and robustness ★ Scientific inference, data analysis, and robustness. 85g:62004

Sellin ★ 6th international summer school on problems of model choice and parameter estimation in regression analysis. 85d:62007

Statistical signal processing ★ Statistical signal processing. 85m:62005

Stochastic asymptotic theory and its applications ★ Stochastic asymptotic theory and its applications. (Japanese) 85g:62005

Studies in econometrics, time series, and multivariate statistics ★ Studies in econometrics, time series, and multivariate statistics. 85f:63004

Studies in mathematical statistics ★ Исследования по математической статистике. VI. (Russian) [Studies in mathematical statistics. VI] 85g:62006

Summer school:

Problems of model choice and parameter estimation in regression analysis ★ 6th international summer school on problems of model choice and parameter estimation in regression analysis. 85d:62007

Survival analysis ★ Survival analysis. 85b:63001

Symposium:

Interface ★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:63005

Stochastic asymptotic theory and its applications ★ Stochastic asymptotic theory and its applications. (Japanese) 85g:62005

Theoretical background in experimental data analysis ★ Theoretical background in experimental data analysis. (Japanese) 85g:62007

Theoretical background in experimental data analysis ★ Theoretical background in experimental data analysis. (Japanese) 85g:62007

**Time series analysis: theory and practice** ★ Time series analysis: theory and practice. 3. 85a:62007

Toronto, Ont. ★ 1983 proceedings of the business and economic statistics section, American Statistical Association. 85a:62003b

Troy, N.Y. ★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:62005

Valencia ★ Time series analysis: theory and practice. 3. 85a:62007

#### Workshop:

Frontiers in statistical quality control ★ Frontiers in statistical quality control. 2. 85g:62002

Robust and nonlinear time series analysis ★ Robust and nonlinear time series analysis. 85m:62004

Signal processing in the ocean environment ★ Statistical signal processing. 85m:62005

secondary classifications (62-06)

(Assad, Arjang A.) See Statistics and optimization: the interface, 85h:90005

(Demetrescu, M. C.) See Studies in probability and related topics, 85m:00005

(Golden, B. L.) See Statistics and optimization: the interface, 85h:90005

(Ioafescu, Marius) See Studies in probability and related topics, 85m:00005

(Itô, Kiyosi) See Probability theory and mathematical statistics, 85g:60004

(Kalaashnikov, V. V.) See Stability problems for stochastic models, 85d:60008

(Kruglov, V. M.) See Random analysis, 85e:60002

(Loeffel, Hans) See Symposium: Operations research, 85h:90006a and 85h:90006b

(Mogyoródi, J.) See Statistics and probability, 85g:60005

(Obretenov, A.) See Summer school: Probability theory and mathematical statistics, 85h:60005

(Onicescu, Octav) See Studies in probability and related topics, 85m:00005

(Prokhorov, Ju. V.) See Random analysis, 85e:60002 and Probability theory and mathematical statistics, 85g:60004

(Rachev, S. T.) See Summer school: Probability theory and mathematical statistics, 85h:60005

(Stähly, Paul) See Symposium: Operations research, 85h:90006a and 85h:90006b

(Vincze, L.) See Statistics and probability, 85g:60005

(Werts, W.) See Statistics and probability, 85g:60005

(Zanakis, Stellos H.) See Statistics and optimization: the interface, 85h:90005

(Zolotarev, V. M.) See Stability problems for stochastic models, 85d:60008

#### Birthday:

Onicescu, Octav ★ Studies in probability and related topics. 85m:00005

#### Conference:

Prague, information theory, statistical decision functions, random processes

★ Transactions of the ninth Prague conference on information theory, statistical decision functions, random processes. Vol. A. 85i:00018a

Methods of operations research ★ Methods of operations research. 47. 85g:90001

Moscow ★ Проблемы устойчивости стохастических моделей. (Russian) [Stability problems for stochastic models] 85d:60008

Prague ★ Transactions of the ninth Prague conference on information theory, statistical decision functions, random processes. Vol. A. 85i:00018a

Probability theory and mathematical statistics ★ Probability theory and mathematical statistics. 85g:60004

Random analysis ★ Случайный анализ. (Russian) [Random analysis] 85e:60002

#### Seminar:

Stability problems for stochastic models ★ Проблемы устойчивости стохастических моделей. (Russian) [Stability problems for stochastic models] 85d:60008

Stability problems for stochastic models ★ Проблемы устойчивости стохастических моделей. (Russian) [Stability problems for stochastic models] 85d:60008

Statistics and optimization: the interface ★ Statistics and optimization: the interface. 85h:90005

Statistics and probability ★ Statistics and probability. 85g:60005

St. Gallen ★ VII. symposium on operations research. Sektionen 1-3. 85h:90006a

Studies in probability and related topics ★ Studies in probability and related topics. 85m:00005

#### Summer school:

Probability theory and mathematical statistics ★ Четвертая международная летняя школа по теории вероятностей и математической статистике. (Russian) [Fourth international summer school on probability theory and mathematical statistics] 85h:60005

Symposium:

Operations research ★ VII. symposium on operations research. Sektionen 1-3. 85h:90006a

Pannonian, mathematical statistics ★ Statistics and probability. 85g:60005

Probability theory and mathematical statistics ★ Probability theory and mathematical statistics. 85g:60004

USSR-Japan, probability theory and mathematical statistics ★ Probability theory and mathematical statistics. 85g:60004

Tbilisi ★ Probability theory and mathematical statistics. 85g:60004

#### Transactions:

Prague conference on information theory, statistical decision functions, random processes

★ Transactions of the ninth Prague conference on information theory, statistical decision functions, random processes. Vol. A. 85i:00018a

Varna ★ Четвертая международная летняя школа по теории вероятностей и математической статистике. (Russian) [Fourth international summer school on probability theory and mathematical statistics] 85h:60005

Visegrád ★ Statistics and probability. 85g:60005

#### 62-07 Data analysis

Braverman, E. M. (with Muchnik, I. B.) ★ Структурные методы обработки эмпирических данных. (Russian) [Structural methods for processing empirical data] 85b:62002

Cameron, Edward C. See Karlin, Samuel; et al., 85a:62008

De, R. N. A note on two stages aggregation of variables through equal weighting in every stage. 85j:62001

Dempster, Arthur P. Purposes and limitations of data analysis. (See 85g:62004)

Garfinkel, R. S. See Liepins, G. E.; et al., 85d:62008

Karlin, Samuel (with Cameron, Edward C.; Williams, Paul T.) Structured exploratory data analysis applied to mode of inheritance. 85a:62008

Kennerley, J. W. See Stanley, P.; et al., 85j:62002

Koskel, S. (with Tib, E.) Some possibilities of generalizing the notion of "feature" in data analysis. (Russian) (Not in MR)

Kunnathur, A. S. See Liepins, G. E.; et al., 85d:62008

Liepins, G. E. (with Garfinkel, R. S.; Kunnathur, A. S.) Error localisation for erroneous data: a survey. 85d:62008

Mallows, C. L. Data description. (See 85g:62004)

Muchnik, I. B. See Braverman, E. M., 85b:62002

Newton, J. M. See Stanley, P.; et al., 85j:62002

Stanley, P. (with Kennerley, J. W.; Newton, J. M.) Assignment errors in histograms with equal class intervals of arbitrary width. 85j:62002

Tib, E. See Koskel, S., (Not in MR)

Williams, Paul T. See Karlin, Samuel; et al., 85a:62008

secondary classifications (62-07)

Aickin, Mikel ★ Linear statistical analysis of discrete data. 85k:62124

Brad, Dan Response surface model diagnosis in two-way tables. 85k:62158

Krafft, Olaf ★ Multivariate deskriptive statistische Verfahren. (German) [Multivariate descriptive statistical methods] 85m:62114

Le Roux, B. (with Rouanet, H.) L'analyse statistique des protocoles multidimensionnels: analyse des comparaisons. [Statistical analysis of multidimensional protocols: analysis of comparisons] 85g:62107

Litvak, B. G. ★ Экспертная информация. (Russian) [Expert information] 85a:62184

Rouanet, H. See Le Roux, B., 85g:62107

#### 62Axx Foundations

##### 62A05 Invariance and group considerations

Hooper, Peter M. A conditional property of invariant confidence and prediction regions. 85k:62004

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- Lombard, F. Asymptotic distributions of rank statistics in the change-point problem. **85c:62113**
- Lu, Chuan Rong A strong invariance principle for estimates of the error variance. (Chinese) (Not in MR)
- Mack, Y. P. Rate of strong uniform convergence of  $k$ -NN density estimates. **85h:62058**
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Lalippala, Pekka Simulation results concerning the empirical Bayes two-action rules with floating optimal sample size. (Not in MR)

Lepage, Yves See Kraft, Charles H.; et al., (Not in MR)

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## 62E30 Formal computational methods (polykays, etc.)

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Orlov, Yu. K. (with Chitashvili, R. Ya.) The statistical significance of Zipf's distribution. (Russian. English and Georgian summaries) (Not in MR)

(with Chitashvili, R. Ya.) A generalized  $Z$ -distribution generating the well-known "rank distributions". (Russian. English and Georgian summaries) (Not in MR)

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- Berger, Roger L. Testing whether one regression function is larger than another. 85m:62136
- Carroll, R. J. Tests for regression parameters in power transformation models. 85h:62087
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- Osterreicher, F. The construction of least favourable distributions is traceable to a minimal perimeter problem. 85h:62009
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- Stewart, Mark B. Significance tests in the presence of model uncertainty and specification search. (Not in MR)
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- Dossi, M. (with Riedwyl, H.) Small sample properties of asymptotic tests for two binomial proportions. (German summary) (Not in MR)
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- Ingster, Yu. I. Asymptotically optimal Bayesian tests for composite hypotheses. (Russian. English summary) 85k:62050
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- Khalafina, N. M. Some asymptotic results connected with the Chauvenet test for multidimensional random variables. (Russian. English summary) 85f:62029
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- Alam, Khurshed Analysis of grouped data from multinomial populations. 85h:62081
- Basawa, I. V. (with Billard, L.; Srinivasan, R.) Large-sample tests of homogeneity for time series models. 85k:62194
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- Campbell, Gregory Testing equality of proportions with incomplete correlated data. 85k:62042

- Chakravorti, S. R. (with Giri, N. C.) Optimum invariant tests on discriminant coefficients or means of multinormal population with additional information. 85g:62060
- Cheng, Smiley W. Hypothesis testing of the location and scale parameters using order statistics. 85j:62018
- Dudewicz, Edward J. (with van der Meulen, Edward C.) Entropy-based statistical inference. II. Selection-of-the-best/complete ranking for continuous distributions on  $(0, 1)$ , with applications to random number generators. 85c:62043
- Giri, N. C. See Chakravorti, S. R., 85g:62060
- Gupta, Shanti S. (with Miescke, Klaus J.) Sequential selection procedures—a decision theoretic approach. 85h:62025
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- Shapiro, Alexander Asymptotic distribution theory in the analysis of covariance structures. A unified approach. 85c:62143
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- Bechhofer, Robert (with Kulkarni, Radhika V.) Closed adaptive sequential procedures for selecting the best of  $k \geq 2$  Bernoulli populations. 85a:62036
- Berger, Roger L. (with Proschan, Frank) Monotonicity in selection problems: a unified approach. 85j:62021
- Chen, Robert (with Hwang, F. K.) Some theorems, counterexamples, and conjectures in multinomial selection theory. 85h:62023
- Choi, Chi Hoon (with Jeon, Jong Woo; Kim, Woo Chul) Selection problems in terms of coefficients of variation. 85j:62022
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- (with Dalal, Siddhartha R.) Multiple-comparisons with a control when variances are unknown and unequal. 85g:62038
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- Saran, Jagdish See Sen, Kanwar, 85i:60062
- Sen, Kanwar (with Saran, Jagdish) On the distribution of crossings in a generalized random walk. 85i:60062
- See also Kaul, C. L., 85g:60073
- Sen, Pranab Kumar Subhypotheses testing against restricted alternatives for the Cox regression model. 85f:62028
- Strauch, Jürgen A nonparametric interminable test for symmetry of power one. 85c:62163
- Sukhatme, Shashikala Asymptotic properties of Cramér-Smirnov statistics—a new approach. 85m:62035
- Tenga, Robert (with Santner, Thomas) Testing goodness of fit to the increasing failure rate family. 85k:62217
- See also Santner, Thomas, 85k:62218
- Varian, Hal R. The nonparametric approach to production analysis. 85g:62185
- Wakimoto, Kazumasa See Yamamoto, Eiji; et al., 85k:60020
- Wood, Constance L. On tests for normality of experimental error in ridge regression. 85j:62069
- Yamamoto, Eiji (with Wakimoto, Kazumasa; Nabeya, Seiji) Joint moments of the number of + runs and the number of + signs in a random sequence. 85k:60020
- Yoshihara, Ken-ichi (with Negishi, Hiroshi) Berry-Esseen rates for simple linear rank statistics. 85f:60023
- van Zwet, W. R. On the Edgeworth expansion for the simple linear rank statistic. 85b:62026
- 62G15 Tolerance and confidence regions
- Govindarajulu, Z. (with Mason, David M.) A strong representation for linear combinations of order statistics with application to fixed-width confidence intervals for location and scale parameters. 85j:62048a
- (with Mason, David M.) Correction note: "A strong representation for linear combinations of order statistics with application to fixed-width confidence intervals for location and scale parameters". 85j:62048b
- Gillaud, Olivier Nonparametric prediction intervals for sample medians in the general case. 85c:62121
- Mason, David M. See Govindarajulu, Z., 85j:62048a and 85j:62048b
- Sandford, Martin D. Nonparametric one-sided confidence intervals for an unknown distribution function using censored data. (Not in MR)
- Schechtman, Edna A conservative nonparametric distribution-free confidence bound for the shift in the changepoint problem. 85c:62088
- Trichtler, David On inverting permutation tests. 85m:62109
- secondary classifications (62G15)
- Beran, Rudolf Bootstrap methods in statistics. 85h:62052
- Dasgupta, R. See Ghosh, Malay, 85j:60034
- Ghosh, Malay (with Dasgupta, R.) Berry-Esseen theorems for  $U$ -statistics in the non i.i.d. case. 85j:60034
- Haskell, James H. See Johnson, Richard A., 85c:62059
- Heidelberger, P. (with Lewis, P. A. W.) Quantile estimation in dependent sequences. 85g:62058
- Hušková, M. On bounded length sequential confidence interval for parameter in regression model based on ranks. 85k:62180
- Johnson, Richard A. (with Haskell, James H.) An approximate lower tolerance bound for the three-parameter Weibull applied to lumber property characterization. 85c:62059
- Lewis, P. A. W. See Heidelberger, P., 85g:62058
- Newton, H. Joseph (with Pagano, Marcello) Simultaneous confidence bands for autoregressive spectra. 85k:62205
- Pagano, Marcello See Newton, H. Joseph, 85k:62205
- Palachek, Albert D. (with Schucany, William R.) On approximate confidence intervals for measures of concordance. 85c:62110
- Schucany, William R. See Palachek, Albert D., 85c:62110
- Siegmund, D. A sequential confidence interval for the odds ratio. 85d:62082
- 62G20 Asymptotic efficiency
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- Kremer, E. Bahadur-efficiency of linear rank tests—a survey. (Russian and Czech summaries) 85f:62058
- Leurgans, Sue Asymptotic behavior of two-sample rank tests in the presence of random censoring. 85m:62110
- Mason, David M. A Bahadur efficiency comparison between one and two sample rank statistics and their sequential rank statistic analogues. 85k:62111

- Nikitin, Ya. Yu. Asymptotic comparison of a class of nonparametric tests with the Student test. (Russian. English summary) **85d:62085**
- Nussebaum, M. An asymptotic minimax risk bound for estimation of a linear functional relationship. **85k:62113**
- Roth, Günter Asymptotic absolute efficiency of projection tests with an application to  $n$ -ranking tests. **85m:62111**
- Weisfeld, Lisa A. (with Weisand, H. Samuel) Bounds on efficiencies for some two-sample nonparametric statistics. **85c:62122**
- Wellner, Jon A. See Begun, Janet M., **85f:62087**
- Weisand, H. Samuel See Weisfeld, Lisa A., **85c:62122**

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- Begun, Janet M. (with Hall, W. J.; Huang, Wei Min; Wellner, Jon A.) Information and asymptotic efficiency in parametric-nonparametric models. **85k:62086**
- Behnen, Konrad (with Neuhaus, Georg; Ruymgaart, Frits) Two-sample rank estimators of optimal nonparametric score-functions and corresponding adaptive rank statistics. **85k:62089**
- Dehpande, J. V. (with Kusum, Kalpana) A test for the nonparametric two sample scale problem. **85m:62094**
- Hall, W. J. See Begun, Janet M.; et al., **85k:62086**
- Huang, Wei Min See Begun, Janet M.; et al., **85k:62086**
- Halková, M. Adaptive procedures for the two-sample location model. **85j:62096**
- Kakluchi, Nauro Some estimators of spread based on quasiranges. **85m:62090**
- Kallenberg, Wilbert C. M. Intermediate efficiency, theory and examples. **85h:62021**
- Kepner, James L. (with Randles, Ronald H.) Comparison of tests for bivariate symmetry versus location and/or scale alternatives. **85i:62037**
- Kindermann, R. P. (with Levy, M. S.) A condition for best asymptotic normality in a regular family of distributions. **85k:62088**
- Koul, H. L. (with Susarla, V.) Adaptive estimation in linear regression. **85k:62089**
- Kumasawa, Yoshiki A class of test statistics for testing whether new is better than used. **85c:62196**
- Kusum, Kalpana See Dehpande, J. V., **85m:62094**
- Leurgans, Sue Three classes of censored data rank tests: strengths and weaknesses under censoring. **85f:62065**
- Levy, M. S. See Kindermann, R. P., **85k:62088**
- Massaro, Yoshihiko (with Yanagawa, Takashi) Over-all rank tests for 1 to  $k$  matched continuous data in case-control studies. **85k:62104**
- Marron, James Stephen Optimal rates on convergence to Bayes risk in nonparametric discrimination. **85c:62120**
- Neuhaus, Georg  $H_0$ -contiguity in nonparametric testing problems. (Russian and Czech summaries) **85c:62115**
- See also Behnen, Konrad; et al., **85h:62059**
- Nikitin, Ya. Yu. Local asymptotic optimality in the sense of Bahadur and characterization problems. (Russian. English summary) **85j:62020**
- Randles, Ronald H. See Kepner, James L., **85i:62037**
- Rothberg, Thomas J. Asymptotic properties of some estimators in structural models. **85k:62234**
- Ruymgaart, Frits See Behnen, Konrad; et al., **85h:62059**
- Susarla, V. See Koul, H. L., **85k:62089**
- Wellner, Jon A. See Begun, Janet M.; et al., **85k:62086**
- Yanagawa, Takashi See Massaro, Yoshihiko, **85k:62104**

## 62G30 Order statistics; empirical distribution functions

- Ali, M. Masoom See Saleh, A. K. Md. Ehsanes; et al., **85d:62066**
- Aly, Emad-Elidin A. A. Some limit theorems for uniform and exponential spacings. (French summary) **85f:62050**
- Balakrishnan, N. See Joshi, P. C., **85e:62090**
- Belviken, Erik The distribution of certain rational functions of order statistics from exponential distributions. **85g:62074**
- Chanda, Kamal C. Asymptotic expansion for a class of sample quantiles. **85f:62060**
- Corley, H. W. Multivariate order statistics. **85g:62075**
- David, H. A. (with Rogers, M. P.) Order statistics in overlapping samples, moving order statistics and  $U$ -statistics. **85c:62122**
- See also Harter, H. Leon, **85h:62086a**
- Doe, Ronald J. M. M. (with Helmers, R.) Edgeworth expansions for functions of uniform spacings. **85a:62084**
- Ghosh, Malay See Huang, Jin-sheng, **85g:62076**
- Gnedenko, B. V. (with Stomatovich, S.; Shukri, A.) Distribution of the median. (Russian) **85k:62113**
- Govindarajulu, Z. Asymptotic normality of linear combinations of functions of order statistics in one and several samples. **85h:62065**
- Green, Jack See Ragab, Aisha, **85k:62116**
- Grudskiy, Zofia (with Szyal, D.) On distributions and moments of order statistics for random sample size. (Russian and Polish summaries) **85m:62112**
- Gupta, Devendra (with Gupta, Ramesh C.) On the distribution of order statistics for a random sample size. **85k:62114**
- Gupta, Ramesh C. See Gupta, Devendra, **85k:62114**
- de Haan, Laurens Corrigenda: "Estimation of the minimum of a function using order statistics" [J. Amer. Statist. Assoc. **76** (1981), no. 374, 467-469; MR **83a:62103**]. **85c:62089**
- Harter, H. Leon ★ The chronological annotated bibliography of order statistics. Vol. I. **85h:62086a**
- ★ The chronological annotated bibliography of order statistics. Vol. II. **85h:62086b**
- Helmers, R. See Doe, Ronald J. M. M., **85a:62084**
- Huang, Jin-sheng (with Ghosh, Malay) Corrigenda: "A note on strong unimodality of order statistics" [J. Amer. Statist. Assoc. **77** (1982), no. 380, 929-930; MR **84d:62098**]. **85g:62076**

- Iheda, Sadao (with Nonaka, Yoshiyuki) Uniform asymptotic joint normality of a set of increasing number of sample quantiles. **85k:62115**
- Joshi, P. C. (with Balakrishnan, N.) Bounds for the moments of extreme order statistics for large samples. (German and Russian summaries) **85e:62090**
- Khan, A. H. (with Parvez, S.; Yaqub, Mohd.) Recurrence relations between product moments of order statistics. **85e:62091**
- Landman, Z. M. Sample quantiles: estimation, information, sufficiency. (Russian) **85f:62061**
- Lingappiah, G. S. On the linear combinations of spacings and the restricted range in the exponential populations. (Polish summary) **85a:62085**
- Mohanty, S. G. On some computational aspects of rectangular probabilities. **85a:62086**
- Nevasov, V. B. Representations for order statistics constructed from differently scaled exponential variables. (Russian. English summary) **85m:62113**
- Nonaka, Yoshiyuki See Iheda, Sadao, **85k:62115**
- Parvez, S. See Khan, A. H.; et al., **85e:62091**
- Pham, Tuan D. (with Tran, Lanh T.) On functions of order statistics in the non-i.i.d. case. **85e:62092**
- Pinhas, Max Variables concomitantes et information qualitative. (Italian summary) [Concomitant variables and qualitative information] (Not in MR)
- Ragab, Aisha (with Green, Jack) On order statistics from the log-logistic distribution and their properties. **85k:62116**
- Rogers, M. P. See David, H. A., **85c:62122**
- Saleh, A. K. Md. Ehsanes (with Ali, M. Masoom; Umbach, Dale) Estimating the quantile function of a location-scale family of distributions based on few selected order statistics. **85d:62066**
- Samuel-Cahn, E. Minimizing the expected sample range. **85g:62077**
- Shukri, A. See Gnedenko, B. V.; et al., **85k:62113**
- Stomatovich, S. See Gnedenko, B. V.; et al., **85k:62113**
- Szyal, D. See Grudskiy, Zofia, **85m:62112**
- Tran, Lanh T. See Pham, Tuan D., **85e:62092**
- Umbach, Dale See Saleh, A. K. Md. Ehsanes; et al., **85d:62066**
- (Weiss, Lionel) See Harter, H. Leon, **85h:62086b**
- Yaqub, Mohd. See Khan, A. H.; et al., **85e:62091**
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- Al-Hussaini, A. (with Elliott, Robert J.) Semimartingales and the empirical distribution. **85m:60060**
- (with Elliott, Robert J.) The single jump process with some statistical applications. **85m:60037**
- Arnold, B. C. (with Becker, A.; Gather, U.; Zahedi, H.) On the Markov property of order statistics. **85h:62011**
- Aslarov, T. A. (with Volodin, N. A.) ★ Характеризационные задачи, связанные с показательным распределением. (Russian) [Characterization problems connected with the exponential distribution] **85g:62026**
- Babu, Guttu Jogesh On the law of iterated logarithm for occupation measures of empirical processes. **85h:60041**
- Balakrishnan, N. (with Joshi, P. C.) Single and product moments of order statistics from symmetrically truncated logistic distribution. **85i:62015**
- (with Joshi, P. C.) Product moments of order statistics from the doubly truncated exponential distribution. **85c:62023**
- Becker, A. See Arnold, B. C.; et al., **85h:62011**
- Borisov, I. S. An approximation of empirical fields. **85d:60065**
- Rate of convergence in invariance principle in linear spaces. Application to empirical measures. **85j:60063**
- Burke, M. D. Tests for exponentiality based on randomly censored data. **85e:62080**
- Canfield, E. Rodney (with McCormick, W. P.) Exact and limiting distribution of sustained maxima. **85d:60045**
- Cheng, Shi Hong Multidimensional ranking limit theorems. I. (Chinese) **85j:60033a**
- Multidimensional ranking limit theorems. II. (Chinese) **85j:60033b**
- Cheng, Smiley W. On the most powerful quantile test of the scale parameter. **85h:62061**
- Hypothesis testing of the location and scale parameters using order statistics. **85j:62018**
- Csaki, E. On the standardized empirical distribution function. **85d:60061**
- Csörgő, Sándor (with Totik, V.) On how long interval is the empirical characteristic function uniformly consistent? **85e:62029**
- Daley, Daryl J. (with Hall, Peter) Limit laws for the maximum of weighted and shifted i.i.d. random variables. **85m:60041**
- David, H. A. (with Kinyon, Lawrence C.) The probability that out of  $n$  events at least  $r$  ( $\geq n-2$ ) occur within time span  $t$ . **85h:60017**
- Deheuvels, Paul Strong bounds for multidimensional spacings. **85g:60038**
- The characterization of distributions by order statistics and record values—a unified approach. **85j:62009**
- Doe, Ronald J. M. M. (with Klaassen, Chris A. J.) The Berry-Esseen theorem for functions of uniform spacings. **85c:60036**
- Elliott, Robert J. See Al-Hussaini, A., **85m:60037** and **85m:60060**
- Gather, U. See Arnold, B. C.; et al., **85h:62011**
- Gnedenko, B. V. (with Sherif, A.) Limit theorems for extreme-order statistics. (Russian) **85c:60024**
- (with Senusi-Bereki, L.) The property of extendability of limit distributions for the maximum term of a sequence. (Russian. English summary) **85e:60024**
- Govindarajulu, Z. (with Mason, David M.) A strong representation for linear combinations of order statistics with application to fixed-width confidence intervals for location and scale parameters. **85j:62048a**
- (with Mason, David M.) Correction note: "A strong representation for linear combinations of order statistics with application to fixed-width confidence intervals for location and scale parameters". **85j:62048b**

- Gribkova, N. V. Estimates of the concentration function of linear combinations of order statistics of a uniform distribution. (Russian) **85m:60033**
- Gullbaud, Olivier Nonparametric prediction intervals for sample medians in the general case. **85c:62121**
- Gupta, Ramesh C. Relationships between order statistics and record values and some characterization results. **85m:62025**
- de Haan, Laurens (with Resnick, S. I.) Stochastic compactness and point processes. **85j:60036**
- Hall, Peter (with Welsh, A. H.) Best attainable rates of convergence for estimates of parameters of regular variation. **85k:62086**  
See also Daley, Daryl J., **85m:60041**
- Henry, Robert J. Permutation probabilities for gamma random variables. **85a:62024**
- Joshi, P. C. See Balakrishnan, N., **85c:62023** and **85i:62015**
- Kinyon, Lawrence C. See David, H. A., **85h:60017**
- Klaassen, Chris A. J. See Does, Ronald J. M. M., **85f:60036**
- Kohne, W. (with Reiss, R.-D.) A note on uniform approximation to distributions of extreme order statistics. **85m:62034**
- Kudrjav, E. M. A class of invariant goodness-of-fit tests constructed from the middle part of the order statistics. (Russian. English summary) **85c:62110**
- Le Cam, L. A remark on empirical measures. **85b:60020**
- Mason, David M. (with Shorack, Galen R.; Wellner, Jon A.) Strong limit theorems for oscillation moduli of the uniform empirical process. **85f:60048**  
Weak convergence of the weighted empirical quantile process in  $L^2(0,1)$ . **85i:60006**  
See also Govindarajulu, Z., **85j:62048a** and **85j:62048b**
- McCormick, W. P. See Canfield, E. Rodney, **85d:60045**
- Nayak, S. S. Almost sure limit points of and the number of boundary crossings related to SLLN and LIL for record times, inter-record times and the number of record values. **85h:60043**
- Nezvorov, V. B. The rate of convergence to the normal law of order statistics for nonidentically distributed variables. (Russian. English summary) **85g:60034**
- Novikova, E. A. Limit distributions of order statistics. (Russian) **85b:60022**
- Pereira, Helena Iglesias Rate of convergence towards a Fréchet type limit distribution. **85h:60034**
- Pickands, James, III. Extreme order statistics with cost of sampling. **85c:60064**
- Portal, Frédéric Principe d'invariance faible avec vitesse pour un processus empirique dans un cadre multidimensionnel et fortement mélangeant. (English summary) [Weak invariance principle with rate for an empirical process in a multidimensional and strongly mixing framework] **85d:60071**
- Raoult, J.-P. Some remarks on generalized Skorohod topology, in connection with weak convergence of multidimensional empirical processes (nonstationary  $\varphi$ -mixing case). **85h:62016**
- Reiss, R.-D. See Kohne, W., **85m:62034**
- Resnick, S. I. See de Haan, Laurens, **85j:60036**
- Révész, P. On the stability of random sequences. (Hungarian) **85h:60044**
- Sarkadi, K. A direct proof for a ballot type theorem. **85h:60018**
- Schlee, W. Nonparametric tests of the monotony and convexity of regression. **85g:62062**
- Sen, Pranab Kumar On the limiting behaviour of the empirical kernel distribution function. **85g:62063**
- Senuti-Bereksi, L. See Gnedenko, B. V., **85c:60024**
- Sherif, A. See Gnedenko, B. V., **85c:60024**
- Shorack, Galen R. See Mason, David M.; et al., **85f:60048**
- Totik, V. See Csörgő, Sándor, **85c:62029**
- Volodin, N. A. See Aslarov, T. A., **85g:62026**
- Wellner, Jon A. See Mason, David M.; et al., **85f:60048**
- Welsh, A. H. See Hall, Peter, **85k:62086**
- Zahedi, H. See Arnold, B. C.; et al., **85h:62011**
- van Zwet, W. R. Ranks and order statistics. **85m:62108**

## 62G99 None of the above, but in this section

- Acharya, B. D. Combinatorial aspects of a measure of rank correlation due to Kendall and its relation to social preference theory. (See **85g:00028**)
- Davis, Barry R. Nonparametric prediction analysis for binary data. **85c:62124**
- Fisher, Nicholas I. Graphical methods in nonparametric statistics: a review and annotated bibliography. (French summary) **85a:62067**
- García Pérez, Alfonso A simple homogeneous process and the survival function. (Spanish. English summary) (Not in MR)
- Huňková, M. Adaptive procedures. (Russian and Czech summaries) **85c:62125**
- Krasker, William S. A note on selecting parametric models in Bayesian inference. **85g:62078**
- Puri, Madan L. (with Rajaram, N. S.) Stochastic integrals and rank statistics. **85j:62049**
- Rajaram, N. S. See Puri, Madan L., **85j:62049**
- Swanepoel, Jan W. H. Nonparametric procedures for selecting the largest of  $k$  truncation parameters. **85g:62079**

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- Athreya, K. B. (with Ghosh, Malay; Low, Leone Y.; Sen, Pranab Kumar) Laws of large numbers for bootstrapped  $U$ -statistics. **85m:62062**
- Betrò, B. On the effectiveness of the Bayesian nonparametric approach to global optimization. (See **85k:90002**)
- Broffitt, James D. Nonparametric classification. **85c:62115**
- Chen, Jeesen (with Rubin, Herman) A note on the behavior of sample statistics when the population mean is infinite. **85c:60022**
- Comonni, G. Errata: "Bayesian analysis of a discrimination problem in the nonparametric setting" [Riv. Mat. Sci. Econom. Social. 4 (1981), no. 2, 89-102; MR 84d:62021]. (Italian) **85h:62005**
- Deshpande, J. V. (with Mehta, Gobind P.) Nonparametric procedures to select populations better than a known standard. **85m:62043**

- Devijver, Pierre A. Advances in nonparametric techniques of statistical pattern classification. (See **85k:68006**)
- Devroye, Luc (with Wagner, T. J.) Nearest neighbor methods in discrimination. **85f:62076**
- Ghosh, Malay See Athreya, K. B.; et al., **85m:62062**
- Groeneboom, Piet (with Pyke, Ronald) Asymptotic normality of statistics based on the convex minorants of empirical distribution functions. **85c:62030**
- Gupta, Shanti S. (with McDonald, Gary C.) Nonparametric procedures in multiple decisions (ranking and selection procedures). **85d:62025**
- Hall, Peter Limit theorems for sums of general functions of  $m$ -spacings. **85j:60038**
- Kharin, Yu. S. Asymptotic expansions for the risk of parametric and nonparametric decision functions. **85m:62130**
- Low, Leone Y. See Athreya, K. B.; et al., **85m:62062**
- McDonald, Gary C. See Gupta, Shanti S., **85d:62025**
- Mehta, Gobind P. See Deshpande, J. V., **85m:62043**
- Pyke, Ronald See Groeneboom, Piet, **85c:62030**
- Robwer, C. H. Nonlinear smoothers with stable behaviour. (See **85h:65007**)
- Rubin, Herman See Chen, Jeesen, **85c:60022**
- Sen, Pranab Kumar See Athreya, K. B.; et al., **85m:62062**
- Simar, Léopold A survey of Bayesian approaches to nonparametric statistics. **85c:62011**
- Wagner, T. J. See Devroye, Luc, **85f:62076**

## 62Hxx Multivariate analysis [See also 60Exx.]

- (Fahrmeir, Ludwig) See Multivariate statistical procedures, **85g:62066**
- (Hamerle, Alfred) See Multivariate statistical procedures, **85g:62066**
- Multivariate statistical procedures ★ Multivariate statistische Verfahren. (German) [Multivariate statistical procedures] **85g:62060**
- Multivariate statistische Verfahren ★ Multivariate statistische Verfahren. (German) [Multivariate statistical procedures] **85g:62060**

## secondary classifications (62Hxx)

- Kendall, Maurice George (with Stuart, Alan; Ord, J. Keith) ★ The advanced theory of statistics. Vol. 3. **85d:62001**
- Ord, J. Keith See Kendall, Maurice George; et al., **85d:62001**
- Stuart, Alan See Kendall, Maurice George; et al., **85d:62001**

## 62H05 Characterization and structure theory

- Amato, Vittorio Multivariate dispersion measures. (French summary) **85d:62057**
- Bar-Lev, Shaul K. A characterization of certain statistics in exponential models whose distributions depend on a sub-vector of parameters only. **85c:62093**
- ten Berge, Jos M. F. A generalization of Kristof's theorem on the trace of certain matrix products. **85c:62126**
- Crowley, John See Leurgans, Sue; et al., **85c:62095**
- Good, I. J. See Jensen, D. R., **85f:62062**
- Heller, Barbara Use of the hyperbolic differential operator to find a scalar statistic which has constant regression on the mean of a sample of Wishart matrices. **85k:62117**
- Jensen, D. R. (with Good, I. J.) A representation for ellipsoidal distributions. **85f:62062**
- Joag-Dev, Kumar (with Proschan, Frank) Negative association of random variables, with applications. **85d:62058**
- Khatir, C. G. Multivariate exponential discrete distributions and their characterization by the Rao-Rubin condition for the additive damage model. **85c:62094**
- Kots, Samuel (with Pearn, W. L.; Wichern, Dean W.) Eigenvalue-eigenvector analysis for a class of patterned correlation matrices with an application. **85h:62067**
- Kraft, Olaf ★ Multivariate deskriptive statistische Verfahren. (German) [Multivariate descriptive statistical methods] **85m:62114**
- Krasnowski, W. J. Distance between populations using mixed continuous and categorical variables. **85h:62045**
- Kushner, H. B. (with Meisner, Morris) Formulas for zonal polynomials. **85k:62118**
- Leurgans, Sue (with Tsai, Wei Yann; Crowley, John) Freund's bivariate exponential distribution and censoring. **85c:62095**
- Meisner, Morris See Kushner, H. B., **85k:62118**
- Moharir, S. K. (with Saxena, Rajendra Kumar) Some multivariate probability density functions. **85c:62096**
- Moran, P. A. P. A new expansion for the multivariate normal distribution. **85c:62097**
- Neudecker, H. (with Wansbeek, Tom) Some results on commutation matrices, with statistical applications. (French summary) **85k:62119**
- Papageorgiou, H. On characterizing some bivariate discrete distributions. **85c:62098**
- Pearn, W. L. See Kots, Samuel; et al., **85h:62067**
- Proschan, Frank See Joag-Dev, Kumar, **85d:62058**
- Saxena, Rajendra Kumar See Moharir, S. K., **85c:62096**
- Stadje, W. A note on sample means and variances of dependent normal variables. (German and Russian summaries) **85m:62115**
- Tsai, Wei Yann See Leurgans, Sue; et al., **85c:62095**
- Waldman, Donald M. The mean of the conditional, truncated multinomial distribution. **85k:62120**
- Wansbeek, Tom See Neudecker, H., **85k:62119**
- Watson, G. S. Distributions in  $R^2$  with rotational symmetries. **85c:62090**
- Wichern, Dean W. See Kots, Samuel; et al., **85h:62067**

## secondary classifications (62H05)

- Aslarov, T. A. (with Volodin, N. A.) ★ Характеризационные задачи, связанные с показательным распределением. (Russian) [Characterization problems connected with the exponential distribution] **85g:62026**
- Bhattacharya, C. G. A characterization of an orthogonal matrix with an application. **85c:15012**
- (Cavrilov, C. P.) See Marshall, Albert W., **85a:00004**



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- Morris, Kerwin W. (with Szynal, D.) Convergence in distribution of multiply-indexed arrays, with applications in MANOVA. (Russian and Polish summaries) 85h:60033
- Nagarensker, P. B. On Bartlett's test for homogeneity of variances. 85k:63123
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- Chan, N. N. (with Mak, Tak K.) Estimation of multivariate linear functional relationships. 85c:63134
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- See also Okamoto, Masashi, 85g:63088
- Kariya, Takeaki (with Krishnaiah, P. R.; Rao, C. V.) Inference on parameters of multivariate normal populations when some data is missing. 85c:63136
- Krishnaiah, P. R. See Kariya, Takeaki; et al., 85c:63136
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- Okamoto, Masashi (with Isogawa, Yoshiko) Maximum likelihood method in the Brown-Fereday model of multivariate linear structural relationship. **85g:62088**
- Prentice, Michael J. A distribution-free method of interval estimation for unsigned directional data. **85j:62054**
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- Puri, Madan L. (with Ralescu, Dan A.) Improving upon the best invariant estimator in multivariate location problems. **85m:62120**
- Ralescu, Dan A. See Puri, Madan L., **85m:62120**
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- Reinsel, Gregory A note on conditional prediction in the multivariate linear model. **85m:62121**
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- Sasabuchi, S. (with Inutsuka, M.; Kulatunga, D. D. Sarath) A multivariate version of isotonic regression. **85b:62046**
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- Targhetta, M. Luisa Estimation of the correlation coefficient in bivariate Morgenstern distributions. (Italian summary) (Not in MR)
- Tuendy, G. Decomposition of mixtures. (Hungarian. English summary) **85e:62101**

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- Bock, M. E. Employing vague inequality information in the estimation of normal mean vectors (estimators that shrink to closed convex polyhedra). **85f:62030**
- Boyles, Russell A. On the convergence of the EM algorithm. **85c:62064**
- Chen, Hubert J. (with Tsai, Paul J.) A class of confidence intervals for the largest component mean of a multivariate normal population. **85h:62044**
- Cooley, Edward A. (with Lin, Pi Erh) Bayes minimax estimators of a multivariate normal mean, with application to generalized ridge regression. **85i:62011**
- Elpelt, B. Über verallgemeinerte MINQ-Schätzungen in multivariaten Varianzkomponentenmodellen. [On generalized MINQ-estimates in multivariate variance component models] **85j:62071**
- Focke, Joachim Zur Existenz der Maximum-Likelihood-Schätzung beim Faktorenmödel. (English and Russian summaries) [The existence of the maximum likelihood estimation for the factor model] **85c:62148**
- Ghosh, Malay (with Jiunn Tsion Hwang; Tsui, Kam Wah) Construction of improved estimators in multiparameter estimation for continuous exponential families. **85b:62036**
- Giuliano Antonini, Rita On conditions for coincidence between the method of moments and the maximum likelihood method. (Italian. English summary) **85h:62028**
- Hooper, Peter M. Corrections: "Invariant confidence sets with smallest expected measure" [Ann. Statist. 10 (1982), no. 4, 1283-1294; MR 84e:62059]. **85e:62058**
- Huang, Jun S. (with Yang, Mark C. K.) On the sequence of Bayesian estimates of normal random walk process. **85m:62064**
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- Kano, Yutaka Consistency of estimators in factor analysis. **85i:62045**
- Kawamura, Kasutomo Direct calculation of maximum likelihood estimator for the bivariate Poisson distribution. **85j:62028**
- Krishnamoorthy, K. See Sharma, Divakar, **85h:62006**
- Kubáček, Lubomír Regression model with estimated covariance matrix. (Russian summary) **85d:62071**
- See also Volaufová, Jülia, **85c:62178**
- Levit, B. Ya. Second order availability and positive solutions of the Schrödinger equation. **85c:62012**
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- Nussbaum, M. An asymptotic minimax risk bound for estimation of a linear functional relationship. **85k:62112**
- Sharma, Divakar (with Krishnamoorthy, K.) Orthogonal equivariant minimax estimators of bivariate normal covariance matrix and precision matrix. **85h:62006**
- Shinozaki, Nobuo Simultaneous estimation of location parameters under quadratic loss. **85c:62013**
- Tsai, Paul J. See Chen, Hubert J., **85h:62044**
- Tsui, Kam Wah See Ghosh, Malay; et al., **85b:62036**
- Volaufová, Jülia (with Kubáček, Lubomír) Locally and uniformly best estimators in replicated regression model. (Russian and Slovak summaries) **85c:62178**
- Watson, G. S. Large sample theory of the Langevin distribution. **85d:62062**
- Woodroffe, Michael Empirical Bayes estimation of the mean of a normal distribution with convex loss. **85g:62021**
- Xu, Cheng Yi (with Yang, Wen Li) An optimal property of a quadratic estimator in multivariate linear models. I. (Chinese) **85j:62067**
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- Davis, Thomas M. See Kahiragar, Anant M., **85h:62071**
- Duran, Benjamin S. See Nath, Ravinder, **85c:62103**
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- Fisher, Nicholas I. (with Best, D. J.) Goodness-of-fit tests for Fisher's distribution on the sphere. **85j:62055**

- Giri, N. C. See Chakravorti, S. R., **85g:62089**
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- Groeneboom, Piet (with Truax, Donald R.) ★ A monotonicity property of the power function of multivariate tests. **85f:62066**
- Hudon, Georges Tests unilatéraux multivariés. (English summary) [Multivariate unilateral tests] **85c:62138**
- Kozioł, J. A. On assessing multivariate normality. **85c:62102**
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- Machado, S. G. Two statistics for testing for multivariate normality. **85f:62067**
- Mathai, A. M. The multisample sphericity hypothesis. (Russian. English summary) **85m:62122**
- Moen, David H. (with Broemeling, Lyle D.) Testing for a change in the regression matrix of a multivariate linear model. **85c:62139**
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- Rao, Calyampuli Radhakrishna Likelihood ratio tests for relationships between two covariance matrices. **85m:62123**
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- Truax, Donald R. See Groeneboom, Piet, **85f:62066**
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- Byrne, Philip J. (with Arnold, Steven F.) Inference about multivariate means for a nonstationary autoregressive model. **85e:62179**
- Carter, Walter H., Jr. See Chinchilli, Vernon M., **85k:62219**
- Chinchilli, Vernon M. (with Carter, Walter H., Jr.) A likelihood ratio test for a patterned covariance matrix in a multivariate growth-curve model. (French summary) **85k:62219**
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- Diets, E. Jacquelin Linear signed rank tests for multivariate location. **85k:62100**
- Guo, Da Wei Tests for the hypothesis of no interaction in a multivariate two-way classification model with one observation per cell. (Chinese. English summary) **85a:62099**
- Gupta, Arjun K. (with Rathie, A. K.) Distribution of the likelihood ratio criterion for the problem of  $k$  samples. **85a:62069**
- Hájek, Petr (with Havránek, Tomáš; Chytil, Metoděj K.) ★ Metoda GUHA. (Czech) [The GUHA method] **85m:68031**
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- Hudson, Irene L. Asymptotic tests for growth curve models with autoregressive errors. **85c:62115**
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- Rathie, A. K. See Gupta, Arjun K., **85a:62069** and Pedersoli, G., **85c:62130**
- Rathie, Navratna On the exact distribution of Pearson and Wilks likelihood test statistic. **85a:62072**
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- Sasabuchi, S. (with Inutsuka, M.; Kulatunga, D. D. Sarath) A multivariate version of isotonic regression. **85b:62046**
- Singh, Anita (with Pillai, K. C. S.) On the exact nonnull distribution of Wilks'  $L_{nc}$  criterion in the complex case. **85k:62122**
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- Tyler, David E. A class of asymptotic tests for principal component vectors. **85c:62113**
- Robustness and efficiency properties of scatter matrices. **85g:62085a**
- Errata: "Robustness and efficiency properties of scatter matrices" [Biometrika 70 (1983), no. 2, 411-420]. **85g:62085b**
- (Vaeth, M.) See Walters, D. E., **85c:62188**
- Walters, D. E. (with Rowell, J. G.) Comments on a paper by I. Olkin and M. Vaeth on two-way analysis of variance with correlated errors: "Maximum likelihood estimation

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Hirotsu, C. Defining the pattern of association in two-way contingency tables. 85k:62126

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Rao, J. N. K. (with Scott, A. J.) On chi-squared tests for multiway contingency tables with cell proportions estimated from survey data. 85g:62094

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Stob, Michael A supplement to: "A mathematician's guide to popular sports" [Amer. Math. Monthly 90 (1983), no. 4, 246-266; MR 85i:05122a] by T. Jech. 85i:05122b

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- Kamakura, T. (with Yanagimoto, T.) Evaluation of the regression parameter estimators in the proportional hazard model. **85a:63112**  
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- Akram, M. See Harrison, P. J., **85g:62155**  
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- Filaretov, G. F. See Krasovskii, G. I., **85a:62113**  
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- Kendall, Maurice George (with Stuart, Alan; Ord, J. Keith) ★ The advanced theory of statistics. Vol. 3. **85d:62001**  
 Maljutov, M. B. Lower bounds for the mean length of a sequentially planned experiment. (Russian) **85i:62068**  
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 Stuart, Alan See Kendall, Maurice George; et al., **85d:62001**

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- Bagiatia, C. See Kounias, Stratis; et al., **85c:62194**  
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 Bondar, James V. Universal optimality of experimental designs: definitions and a criterion. (French summary) **85k:62164**  
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 Ghosh, Subir Statistical planning when the parameters in the model are of unequal importance. **85a:62114**  
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 Kikot', V. S. Planning of experiments in self-organization of mathematical models. (Not in MR)

- Kounias, Stratis (with Lefkopoulou, M.; Bagiatia, C.) G-optimal N-observation first order  $2^k$  designs. **85c:62194**  
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 Pukelsheim, Friedrich Optimal designs for linear regression. **85b:62097**  
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 Wynn, Henry P. Optimum submeasures with application to finite population sampling. **85b:62071**  
 Jack Kiefer's contributions to experimental design. **85m:62167**  
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- Bailey, R. A. Restricted randomization. **85j:62075**  
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 Gebhardt, R. (with Heckendorff, H.) Zur sequentiellen Versuchsplanung für das Regressionsproblem. (English and Russian summaries) [On sequential design for the regression problem] **85a:62122**  
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 Hedayat, A. A characterization of a universally optimal design within a class of block designs. **85c:62151**  
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 Kageyama, Sanpei (with Saha, G. M.) Note on the construction of optimum chemical balance weighing designs. **85b:62098**  
 Li, Ker Chau Robust regression designs when the design space consists of finitely many points. **85b:62091**  
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- Raktoe, B. L. See Saha, G. M.; et al. 85m:62175  
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- Agrawal, H. L. (with Prasad, Jagdish) On nested row-column partially balanced incomplete block designs. 85c:62198  
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 Bohidar, N. R. Analysis of randomized block design with inordinate right censorship. (See 85m:62092)  
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- Atkin, A. O. L. (with Hay, L.; Larson, R. G.) Enumeration and construction of pandiagonal Latin squares of prime order. 85i:05048  
 Bagiatas, C. See Kounias, Stratis; et al. 85c:62194  
 Bartlett, M. S. Recent investigations involving stochastic population models. 85k:93053  
 Cheng, Ch'ing Shui (with Constantine, Gregory M.; Hedayat, A.) A unified method for constructing PBIB designs based on triangular and  $L_2$  schemes. 85i:05032  
 Chopra, D. V. Some combinatorial results on balanced arrays. 85d:05034  
 On the maximum constraints for some balanced arrays. 85i:05030  
 Constantine, Gregory M. On the trace efficiency for control of reinforced balanced incomplete block designs. 85b:62068  
 See also Cheng, Ch'ing Shui; et al., 85i:05032  
 Deretaky, Z. On the symmetry of the Smith normal form for  $(v, k, \lambda)$  designs. 85d:05037  
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 Dinitz, Jeffrey H. See Margolia, Stuart W., 85j:20071  
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 Gronau, Hans-Dietrich O. F. (with Prestin, Jürgen) Some results on designs with repeated blocks. 85h:05018  
 Gujarathi, C. C. See Shah, Shantilal M., 85k:62154  
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 Hedayat, A. (with Hwang, H. L.) BIB (8, 56, 21, 3, 6) and BIB (10, 30, 9, 3, 2) designs with repeated blocks. 85h:05020  
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 Kounias, Stratis (with Lefkopoulou, M.; Bagiatas, C.)  $G$ -optimal  $N$ -observation first order  $2^k$  designs. 85c:62194  
 Lander, Eric S. ★ Symmetric designs: an algebraic approach. 85d:05041  
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 Lefkopoulou, M. See Kounias, Stratis; et al. 85c:62194  
 Margolia, Stuart W. (with Dinitz, Jeffrey H.) Translational hulls and block designs. 85j:20071  
 Mikos, Henryk Best estimators in models with individually split experimental units. (Polish) 85c:62203  
 Mohan, R. N. (with Kageyama, Sanpei) A method of construction of group divisible designs. 85c:05023  
 (Mukhopadhyay, A. C.) See Kageyama, Sanpei, 85g:05031  
 Ni, Guo Xi (with Ding, Shu Liang) Generalized optimality of orthogonal designs having interactions of arbitrary order. (Chinese) (Not in MR)  
 Preece, D. A. Corrigenda: "Balance and designs: another terminological tangle" [Utilitas Math. 21 (1982), C, 85-186; MR 83k:05022]. 85a:05016  
 Prestin, Jürgen See Gronau, Hans-Dietrich O. F., 85h:05018  
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 Zhu, Xian Hai  $E$ -optimality of some block designs. (Chinese. English summary) 85m:62168

## 62K15 Factorial designs

- Aggarwal, K. R. A new class of asymmetrical factorial designs of type  $q \times (2q + 1)^m$ . 85c:62202  
 Asatryan, V. I. ★ Теория планирования эксперимента. (Russian) [Theory of designing experiments] 85g:62130  
 Bailey, R. A. Corrigenda: "The decomposition of treatment degrees of freedom in quantitative factorial experiments" [J. Roy. Statist. Soc. Ser. B 44 (1982), no. 1, 63-70; MR 83c:62103]. 85d:62076  
 Chatterjee, Shoutir Kishore Some recent developments in the theory of asymmetric factorial experiments—a review. 85c:62153  
 Gupta, Bisham Chand (with Ramires Carvajal, S. S.) A necessary condition for the existence of main effect plus one plans for  $2^m$  factorials. 85k:62173  
 Gupta, Ram Saran Some new methods for constructing block designs having orthogonal factorial structure. 85c:62154  
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- Kuwada, Masahide Best alias designs in some class of balanced fractional  $3^m$  factorial designs of resolution V. 85b:62155
- Mihos, Henryk Best estimators in models with individually split experimental units. (Polish) 85c:62303
- Morris, Max D. Minimum number of runs for two-level factorial search designs. 85f:62094
- Nigam, A. K. See Sinha, Kishore, 85m:62176
- Pesotan, H. (with Raktos, B. L.; Joiner, J.) On invariance and randomization under factor permutation in fractional factorial designs. 85h:62099
- See also Saha, G. M.; et al., 85m:62175
- Raktos, B. L. See Pesotan, H.; et al., 85h:62099 and Saha, G. M.; et al., 85m:62175
- Ramires Carvajal, S. S. See Gupta, Bhisham Chand, 85k:62173
- Saha, G. M. (with Raktos, B. L.; Pesotan, H.) On the problem of augmented fractional factorial designs. 85m:62175
- Sinha, Kishore (with Nigam, A. K.) Balanced arrays and main-effect plans from regular group-divisible designs. 85m:62176
- Um, Jung-Koog A detection matrix for  $3^m$  search design. 85m:62177
- Wijetunga, A. M. Optimal balanced  $3^3$  factorial designs of resolution V. 85h:62100

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- Bhattacharyya, Gouri K. See Fries, Arthur, 85c:62181
- Chen, C. (with Smith, Theodore M.) A Bayes-type estimator for the Bradley-Terry model for paired comparison. 85f:62087
- Federer, Walter T. See Mandell, John P., 85i:62054
- Fries, Arthur (with Bhattacharyya, Gouri K.) Analysis of two-factor experiments under an inverse Gaussian model. 85c:62181
- Gupta, Ram Saran A basic lemma and the analysis of block and Kronecker product designs. 85k:62109
- Katona, G. O. H. (with Srivastava, Jaya) Minimal 2-coverings of a finite affine space based on GF(2). 85i:62056
- Kuczyński, M. Analysis of covariance in split block design. 85a:62110
- Kuwada, Masahide D-optimal designs of resolution V in some class of fractional  $2^m$  factorial designs. 85a:62115
- Mandell, John P. (with Federer, Walter T.) On the construction of mutually orthogonal  $F$ -hyperrectangles. 85i:62054
- Mount-Campbell, C. A. (with Neuhardt, J. B.) Selection of cost-optimal fractional factorials,  $2^{m-r}3^{n-s}$  series. 85c:62148
- Neuhardt, J. B. See Mount-Campbell, C. A., 85c:62148
- Smith, Theodore M. See Chen, C., 85f:62087
- Srivastava, Jaya See Katona, G. O. H., 85i:62056

## 62K99 None of the above, but in this section

- Afsarimejad, K. Balanced repeated measurements designs. 85k:62174
- Bailey, R. A. Randomization. (See 85g:62003)
- Restricted randomization. 85j:62075
- Bellhouse, David R. Optimal randomization for experiments in which autocorrelation is present. 85c:62156
- Buryl, K. E. (with Men'shikov, M. V.) Lower bounds on the length of a static design in linear problems of the theory of screening experiments. (Russian) 85m:62178
- Curnow, R. N. Confidence intervals under experimental randomization. (See 85m:62002)
- Duthie, Audrey I. A note on the construction of some lattices for the hypercubic association scheme. (French summary) 85k:62175
- Federer, Walter T. See Mandell, John P., 85c:62157
- Folks, J. Leroy Use of randomization in experimental research. (See 85m:62002)
- Guan, Ying Nan A branch-constructing algorithm for extreme vertices of the mixture convex polyhedron and a modified CONSIM algorithm. (Not in MR)
- Gupta, Ram Saran The analysis of nonorthogonal designs with many classifications. 85c:62204
- Hunter, William G. See Steinberg, David M., 85c:62205
- Kim, Joo H. See Park, Sung H., 85j:62076
- Kahirsagar, Anant M. (with McKee, Bonnie) A unified theory of missing plots in experimental designs. 85a:62121
- Lugin, V. N. The method of random balance for a linear model. (Russian) (See 85c:62004)
- Mandell, John P. (with Federer, Walter T.) An extension of MacNeish's theorem to the construction of sets of pairwise orthogonal  $F$ -squares of composite order. 85c:62157
- McKee, Bonnie See Kahirsagar, Anant M., 85a:62121
- Men'shikov, M. V. See Buryl, K. E., 85m:62178
- Park, Sung H. (with Kim, Joo H.) Axis-slope-rotatable designs for experiments with mixtures. 85j:62076
- Steinberg, David M. (with Hunter, William G.) Experimental design: review and comment. 85c:62205
- Wehrhahn, K. On the necessity for randomization in experimental design. 85c:62206
- Welch, William J. A mean squared error criterion for the design of experiments. 85h:62073

## secondary classifications (62K99)

- Genisi, A. (with Lahav, E.; Putter, J.) Estimation of the variance between units of given size from experimental data. 85i:62033
- Girko, V. L. (with Onsha, Yu. M.) The method of spectral functions in the theory of experimental design. (Russian. English summary) 85a:62040
- Hoggar, S. G.  $t$ -designs in projective spaces. 85b:62052
- Khromov, M. N. See Men'shikov, M. V., 85c:62178
- Lahav, E. See Genisi, A.; et al., 85i:62033
- Men'shikov, M. V. (with Khromov, M. N.) Some problems of sequential planning in the theory of screening experiments. (Russian) 85f:62037
- Onsha, Yu. M. See Girko, V. L., 85a:62040
- Pukelsheim, Friedrich On information functions and their polars. 85d:94006
- Putter, J. See Genisi, A.; et al., 85i:62033

## 62Lxx Sequential methods

## 62L05 Sequential design

- Aickin, Michel Some large trial properties of minimum likelihood allocation. 85c:62158
- Bather, J. A. The minimax risk for the two-armed bandit problem. 85k:62176
- Berry, Donald A. Bandit problems with random discounting. 85c:62207
- (with Fristedt, Bert) Maximizing the length of a success run for many-armed bandits. 85c:62208
- Fleming, Thomas R. See Harrington, David P.; et al., 85g:62133
- Fristedt, Bert See Berry, Donald A., 85c:62208
- Gebhardt, R. (with Heckendorff, H.) Zur sequentiellen Versuchsplanung für das Regressionsproblem. (English and Russian summaries) [On sequential design for the regression problem] 85a:62122
- Geng, Shu See Perng, S. K., 85a:62123
- Gittins, J. C. Dynamic allocation indices for Bayesian bandits. 85g:62131
- Glazebrook, K. D. The role of dynamic allocation indices in the evaluation of suboptimal strategies for families of bandit processes. 85h:62101
- (with Jones, D. M.) Some best possible results for a discounted one armed bandit. 85g:62133
- Green, S. J. See Harrington, David P.; et al., 85g:62133
- Harrington, David P. (with Fleming, Thomas R.; Green, S. J.) Procedures for serial testing in censored survival data. 85g:62133
- Heckendorff, H. See Gebhardt, R., 85a:62122
- Jones, D. M. See Glazebrook, K. D., 85g:62131
- Jones, Peter Watts (with Kandel, H. A.) Numerical investigation of the two armed bandit. 85f:62095
- Kalin, Dieter (with Theodorescu, Radu) On a stopping rule for a class of sequential decision problems. 85h:62074
- Kandel, H. A. See Jones, Peter Watts, 85f:62095
- Lai, Tse Leung (with Robbins, Herbert; Siegmund, D.) Sequential design of comparative clinical trials. 85h:62102
- (with Robbins, Herbert) Optimal sequential sampling from two populations. 85h:62103
- Perng, S. K. (with Geng, Shu) Modified  $D$ -optimal sequential procedure in allocation problem. 85a:62123
- Robbins, Herbert See Lai, Tse Leung; et al., 85h:62102 and 85h:62103
- Siegmund, D. See Lai, Tse Leung; et al., 85h:62102
- Smith, Richard L. Properties of biased coin designs in sequential clinical trials. 85j:62077
- Soares, Jose F. (with Wu, Chien Fu Jeff) Some restricted randomization rules in sequential designs. 85c:62159
- Sugden, Roger A. Foundations of survey sampling inference. 85j:62078
- Theodorescu, Radu See Kalin, Dieter, 85h:62074
- Wu, Chien Fu Jeff See Soares, Jose F., 85c:62159

## secondary classifications (62L05)

- Benzing, Harald (with Kolonko, M.) Monotone decision rules for the two-armed bandit. (See 85h:90003)
- De Groot, Morris H. (with Kadane, Joseph B.) Optimal sequential decisions in problems involving more than one decision maker. 85g:62015
- Herkenrath, U. The  $N$ -armed bandit with unimodal structure. 85h:93091
- Jones, Peter Watts (with Kandel, H. A.) A comparison of sampling rules for a Bernoulli two armed bandit. 85j:62080
- Kadane, Joseph B. See De Groot, Morris H., 85g:62015
- Kandel, H. A. See Jones, Peter Watts, 85j:62080
- Karatas, Ioannis Gittins indices in the dynamic allocation problem for diffusion processes. 85i:90141
- Kolonko, M. See Benzing, Harald, (85h:90003)
- Reinganum, Jennifer F. Nash equilibrium search for the best alternative. 85a:90056
- Stratton, I. See Whitehead, John, 85c:6218a and 85c:6218b
- Whitehead, John (with Stratton, I.) Group sequential clinical trials with triangular continuation regions. (French summary) 85c:6218a
- (with Stratton, I.) Correction to: "Group sequential clinical trials with triangular continuation regions". 85c:6218b
- Zidăroiu, Corneliu Stability results for random decision systems with complete connections. 85d:60105

## 62L10 Sequential analysis

- Bandiwala, Shrikant L. A progressively censored sequential likelihood ratio test for general parametric hypotheses. 85g:62134
- Brodskii, B. E. (with Darkhovskii, B. S.) Fastest detection of the time at which the probability characteristics of a random sequence change. 85d:62077
- Brown, Lawrence D. (with Cohen, Arthur; Samuel-Cahn, E.) A sharp necessary condition for admissibility of sequential tests—necessary and sufficient conditions for admissibility of SPRTs. 85h:62104
- Castillo, E. (with Luceño, A.) Necessary conditions for minimax partially sequential truncated tests. 85h:62105
- Cohen, Arthur See Brown, Lawrence D.; et al., 85h:62104
- Corini, Giovanni (with Dalle Mese, Enzo; Marchetti, Giovanni; Verrazzani, Lucio) Comments on: "On a direct method of analysis and synthesis of the SPRT" [IEEE Trans. Inform. Theory 28 (1982), no. 6, 905-911; MR 84b:62124] by I. Vrana. 85h:62106
- Dalle Mese, Enzo See Corini, Giovanni; et al., 85h:62106
- Dambrosia, J. M. (with Greenhouse, S. W.) Early stopping for sequential restricted tests of binomial distributions. (French summary) 85f:62096a
- (with Greenhouse, S. W.) Correction to: "Early stopping for sequential restricted tests of binomial distributions". 85f:62096b
- Daniel, K. An approximation of a functional equation in sequential analysis. 85i:62056

- Darkhovskii, B. S. See Brodskii, B. E., 85d:62077
- Demets, David L. See Lan, K. K. Gordon, 85e:62180
- Edwards, Don (with Hsu, Jason C.) Adaptive sequential procedures for comparing new treatments with a standard. 85a:62124
- Govindarajulu, Z. Stopping times of one-sample rank order sequential probability ratio tests. 85k:62177
- Greenhouse, S. W. See Dambrosia, J. M., 85f:62096 and 85f:62096b
- Hall, W. J. Some sequential tests for matched pairs: a sequential permutation test. 85i:62057
- Hsu, Jason C. See Edwards, Don, 85a:62124
- Irie, A. ★ *Sequentielle Verfahren*. (German) [Sequential methods] 85c:62209  
Extended optimality of sequential probability ratio tests. 85f:62097  
(with Schmits, Norbert) On the optimality of the SPRT for processes with continuous time parameter. (German and Russian summaries) 85g:62135
- Jiroušek, Radim Strategic test—a generalization of the Wald's sequential test. (See 85i:62018a)
- Boundaries for the average length of strategic tests. 85c:62210
- Khan, Rasul A. On cumulative sum procedures and the SPRT with applications. 85j:62079
- Lalley, Steve Nonlinear renewal theory for lattice random walks. 85d:62078
- Lan, K. K. Gordon (with Demets, David L.) Discrete sequential boundaries for clinical trials. 85e:62180
- Luceno, A. See Castillo, E., 85h:62105
- Ma, Yi Lin An explicit formulation of the OC function of the SPRT with a Poisson parameter. (Chinese) 85e:62161
- Mallik, Ashim (with Yao, Yi Ching) Bounds for the Bayes risk for testing sequentially the sign of the drift parameter of a Wiener process. 85m:62179
- Malyutov, M. B. Lower bounds for the mean length of a sequentially planned experiment. (Russian) 85i:62058
- Mann, J. E. On the point of truncation of Bayes sequential tests for a discrete univariate distribution of the exponential type. 85a:62125
- Marchetti, Giovanni See Corsini, Giovanni; et al., 85h:62106
- Matsubara, Nozomu General derivation of exact OC and ASN of SPRT when log of likelihood ratio takes only two integral multiples of a constant. 85k:62178
- Müller-Funk, U. Sequential signed rank statistics. 85m:62180
- Pavlov, I. V. Sequential confidence sets. (Russian) 85c:62211
- Samuel-Cahn, E. Admissibility of tests based on a sample of size one. 85f:62098  
See also Brown, Lawrence D.; et al., 85h:62104
- Schmits, Norbert Minimax sequential tests for the drift of a Wiener process. 85f:62099  
Sequential tests for stochastic processes. (See 85g:62003)
- Asymptotic optimality of differentiated SPRTs for composite hypotheses. (See 85i:62004)
- See also Irie, A., 85g:62135
- Selke, Thomas M. (with Siegmund, D.) Sequential analysis of the proportional hazards model. 85f:62100
- Siegmund, D. See Selke, Thomas M., 85f:62100
- Stadje, W. Some remarks on the average sample number of sequential and nonsequential tests. 85e:62162
- Strauch, Jürgen A nonparametric interminable test for symmetry of power one. 85e:62163
- Verrassani, Lucio See Corsini, Giovanni; et al., 85h:62106
- (Vrana, I.) See Corsini, Giovanni; et al., 85h:62106
- Yao, Yi Ching See Mallik, Ashim, 85m:62179
- secondary classifications (62L10)
- Bechhofer, Robert (with Kulkarni, Radhika V.) Closed adaptive sequential procedures for selecting the best of  $k \geq 2$  Bernoulli populations. 85a:62036
- Chow, Yuan Chih (with Hsiung, Chao Agnes; Yu, K. F.) A renewal theorem and its applications to some sequential procedures. 85c:60138
- Gardiner, Joseph C. Properties of some time-sequential statistics in life-testing. 85a:62155
- Hochschild, Johannes See Lisek, Bernd, 85a:62159
- Hsiung, Chao Agnes See Chow, Yuan Chih; et al., 85c:60138
- Kulkarni, Radhika V. See Bechhofer, Robert, 85a:62036
- Lai, Tse Leung (with Robbins, Herbert; Siegmund, D.) Sequential design of comparative clinical trials. 85h:62102
- Lisek, Bernd (with Hochschild, Johannes) ★ *Sequentielle Zuverlässigkeitsprüfung*. (German) [Sequential reliability testing] 85a:62159
- Mukhopadhyay, Nitis Selecting the largest normal mean through likelihoods. 85h:62026  
Theoretical investigations of some sequential and two-stage procedures to select the larger mean. 85m:62047
- Parr, William C. On the invariance principle for differentiable statistical functionals. 85c:62043
- Ramkaran The robustness of Stein's two-stage procedure. 85d:62035
- Robbins, Herbert See Lai, Tse Leung; et al., 85h:62102
- Siegmund, D. See Lai, Tse Leung; et al., 85h:62102
- Swanepoel, Jan W. H. Nonparametric procedures for selecting the largest of  $k$  truncation parameters. 85g:62079
- Tsatis, Anastasios A. Group sequential methods for survival analysis with staggered entry. 85g:62073
- Wijman, R. A. Sequential confidence sets: estimation-oriented versus test-oriented construction. 85h:62108  
Monotonicity in the noncentrality parameter of the ratio of two noncentral  $t$ -densities. 85b:62027
- Woodroffe, Michael On sequential rank tests. 85m:62107
- Yu, K. F. See Chow, Yuan Chih; et al., 85c:60138

## 62L12 Sequential estimation

- Adke, S. R. (with Manjunath, S. M.) Sequential estimation for continuous time finite Markov processes. 85k:62179
- Ardasuy Albajar, Ramón Optimal sequential estimate of the parameter of a binomial distribution. (Spanish) (See 85g:60026)
- Chen, Xi Ru On a problem of probability density estimation. (Chinese. English summary) 85g:62136
- Cohen, Arthur (with Sackrowitz, Harold) Bayes double sample estimation procedures. 85m:62181
- Fang, Zhao Ben A fixed-width scale type sequential confidence interval for the mean of  $U$ -statistics. (Chinese. English summary) 85h:62107
- Ferguson, Thomas S. Sequential estimation with Dirichlet process priors. 85c:62164
- Finster, Mark A frequentist approach to sequential estimation in the general linear model. 85c:62212
- Gardiner, Joseph C. (with Susarla, V.) Sequential estimation of the mean survival time under random censorship. 85c:62213
- Ghosh, Malay See Mukhopadhyay, Nitis; et al., 85g:62137
- Grambsch, Patricia Sequential sampling based on the observed Fisher information to guarantee the accuracy of the maximum likelihood estimator. 85d:62079
- Hamdy, Hosny I. See Mukhopadhyay, Nitis; et al., 85g:62137
- Hayre, L. S. Sequential estimation of the difference between the means of two normal populations. 85b:62075
- Hutková, M. On bounded length sequential confidence interval for parameter in regression model based on ranks. 85k:62180
- Konev, V. V. Bounds for the mean number of observations in problems of sequential estimation of the parameters of recurrent stochastic processes. 85c:62214
- Laniel, Normand See Moore, Marc, 85i:62059
- Manjunath, S. M. See Adke, S. R., 85k:62179
- Martinek, Adam T. Second order approximation to the risk of a sequential procedure. 85c:62215
- Moore, Marc (with Laniel, Normand) Reconstruction échantillonnale d'une forme convexe. (English summary) [Sample reconstruction of a convex form] 85i:62059
- Mukhopadhyay, Nitis On the asymptotic regret while estimating the location of an exponential distribution. 85c:62216  
Stein's two-stage procedure and exact consistency. 85c:62217  
(with Ghosh, Malay; Hamdy, Hosny I.; Wackerly, Dennis D.) Sequential and two-stage point estimation for the range in a power family distribution. 85g:62137
- Newey, Whitney K. A method of moments interpretation of sequential estimators. 85d:62080
- Sackrowitz, Harold See Cohen, Arthur, 85m:62181
- Sen, Pranab Kumar On asymptotic normality in sequential sampling tagging. 85d:62081
- Shapiro, C. P. Sequential allocation and optional stopping in Bayesian simultaneous estimation. 85g:62138
- Siegmund, D. A sequential confidence interval for the odds ratio. 85d:62062
- Stadje, W. A class of situations where fixed sample Bayes estimates are sequentially asymptotically optimal. 85i:62060
- Stefanov, V. T. Oblique sequential plans for finite-state Markov processes. 85g:62139
- Susarla, V. See Gardiner, Joseph C., 85c:62213
- Wackerly, Dennis D. See Mukhopadhyay, Nitis; et al., 85g:62137
- Wijman, R. A. Sequential confidence sets: estimation-oriented versus test-oriented construction. 85h:62108  
Sequential estimation- and test-oriented confidence intervals for  $\mu/\sigma$  in a normal population. 85e:62165
- secondary classifications (62L12)
- Dorogovtsev, A. Ya. Estimation of the mean value parameter in a Hilbert space. (Russian) 85b:62024
- Jennison, Christopher (with Johnstone, Iain M.; Turnbull, Bruce W.) Asymptotically optimal procedures for sequential adaptive selection of the best of several normal means. 85d:62027
- Johnstone, Iain M. See Jennison, Christopher; et al., 85d:62027
- Konev, V. V. Bounds for the mean time of attainment of a constant threshold by a nonanticipating functional of a random process of recurrent type. (Russian) 85c:62228
- Müller-Funk, U. On contiguity and weak convergence with an application to sequential analysis. 85c:62033
- Shifman, S. V. Stochastic approximation in filtering and identification problems. 85j:62070
- Stefanov, V. T. Efficient sequential estimation in finite-state Markov processes. 85m:62189
- Tartakovsky, A. G. Sequential parameter estimation and filtration of stochastic processes. 85d:62033
- Turnbull, Bruce W. See Jennison, Christopher; et al., 85d:62027
- Zhao, Lin Cheng Sequential estimation of error variance of linear model and its asymptotic behavior. (Chinese) 85b:62065
- Zieliński, Ryszard A class of stopping rules for fixed precision sequential estimates. (Polish summary) 85f:62103
- 62L15 Optimal stopping [See also 60G40.]
- Abe, Ken-ichi See Sato, Mitsuo; et al., 85k:62182
- Angus, J. E. See Arnold, B. C., 85c:62218
- Arnold, B. C. (with Angus, J. E.) Some limiting distributions associated with sequences of multinomial trials. 85c:62218
- Bai, D. S. See Choe, K. I., 85e:62167
- Bather, J. A. Optimal stopping of Brownian motion: a comparison technique. 85i:62061
- Bojdecki, Tomasz The maximum probability method in problems of sequential analysis. (Polish) 85e:62166

- Bruss, F. Thomas A unified approach to a class of best choice problems with an unknown number of options. **85m:62183**
- Choe, K. I. (with Bai, D. S.) A secretary problem with backward solicitation and uncertain employment. **85c:62167**
- Dochviri, V. M. (with Shashihvili, M. A.) On the convergence of costs in the problem of optimal stopping of stochastic processes in the scheme of Kalman-Bucy. **85b:62078**
- Fushimi, Masanori Play-the-winner sampling procedures with nonsymmetric stopping boundaries for a binomial selection problem. **85c:62319**
- Golubev, G. K. (with Khas'minskii, R. Z.) Sequential signal detection in Gaussian white noise. (Russian. English summary) **85f:62101**
- Grant, Peter Secretary problems with inspection costs as a game. **85c:62168**
- Jones, Peter Watts (with Kandel, H. A.) A comparison of sampling rules for a Bernoulli two armed bandit. **85j:62080**
- Kandel, H. A. See Jones, Peter Watts, **85j:62080**
- Khas'minskii, R. Z. See Golubev, G. K., **85f:62101**
- Lai, Tse Leung (with Siegmund, D.) Fixed accuracy estimation of an autoregressive parameter. **85c:62169**
- Majumdar, A.-A.-K. Optimal stopping based on two types of runs under drawings with replacement. **85f:62103**
- Morimoto, Hiroaki On a discretization procedure for the stopping time problem. **85c:62170**
- Nakai, Tetsu Optimal stopping problem in a finite state partially observable Markov chain. **85c:62126**
- O'Brien, George L. Optimal stopping when sampling with and without replacement. **85c:62220**
- Prezman, E. L. (with Sonin, I. M.) "Two and many-armed bandit" problems with infinite horizon. **85k:62181**
- Sakaguchi, Minoru A discrete-time disorder problem with a terminal classification. **85m:62183**
- Sato, Mitsuo (with Abe, Ken-ichi; Takada, Hiroshi) A learning algorithm for the finite-time two-armed bandit problem. **85k:62183**
- Shashihvili, M. A. See Dochviri, V. M., **85b:62078**
- Siegmund, D. See Lai, Tse Leung, **85c:62169**
- Sonin, I. M. See Prezman, E. L., **85k:62181**
- Takada, Hiroshi See Sato, Mitsuo; et al., **85k:62183**
- Tanaka, Mitsuo An optimal parking problem. **85a:62137**
- Tierney, Luke The hazards of optimal proofreading. **85c:62221**
- Yoshida, Minoru Probability maximizing approach to a detection problem with continuous Markov processes. **85c:62222**
- Zelinski, Ryszard A class of stopping rules for fixed precision sequential estimates. (Polish summary) **85f:62103**

## secondary classifications (62L15)

- Arató, M. Run length control in simulations and performance evaluation and elementary Gaussian processes. **85a:62130**
- Barron, Austin See Glasser, Kenneth S.; et al., **85b:60045**
- Campbell, Gregory Optimal selection based on relative ranks of a sequence with ties. **85h:60067**
- Chitashvili, R. Ya. See Yushkevich, A. A., **85c:93092**
- Dochviri, V. M. (with Shashihvili, M. A.) Convergence of value functions in a discrete problem of optimal stopping with incomplete data. (Russian. English and Georgian summaries) **85h:60063**
- Flatau, J. (with Irie, A.) Optimal stopping for extremal processes. **85c:60063**
- Glasser, Kenneth S. (with Holsager, Richard; Barron, Austin) The  $d$  choice secretary problem. **85b:60045**
- Glassbrook, K. D. Optimal strategies for families of alternative bandit processes. **85d:90113**
- Holsager, Richard See Glasser, Kenneth S.; et al., **85b:60045**
- Irie, A. ★ Sequentielle Verfahren. (German) [Sequential methods] **85c:62200**
- On the infinitesimal characterization of monotone stopping problems in continuous time. **85m:60063**
- See also Flatau, J., **85c:60063**
- Jennison, Christopher Equal probability of correct selection for Bernoulli selection procedures. **85c:62057**
- Kalla, Dieter (with Theodorescu, Radu) On a stopping rule for a class of sequential decision problems. **85b:62074**
- Lai, Tse Leung (with Robbins, Herbert; Siegmund, D.) Sequential design of comparative clinical trials. **85h:62102**
- Longnecker, M. Optimal stopping under general dependence conditions. **85a:60047**
- Majumdar, A.-A.-K. (with Sakaguchi, Minoru) Optimal stopping for the urn problem with random termination. **85h:60068**
- Miller, Robert A. (with Voltaire, Karl) A stochastic analysis of the tree paradigm. **85a:90113**
- Morgan, Peter B. Search and optimal sample sizes. **85a:90138**
- Mukhopadhyay, Nilis On the asymptotic regret while estimating the location of an exponential distribution. **85c:62316**
- Müller-Punk, U. A quantitative SILN for linear rank statistics. **85m:62099**
- Petrucelli, Joseph D. Best-choice problems involving recall and uncertainty of selection when the number of observations is random. **85h:60069**
- Pickands, James, III. Extreme order statistics with cost of sampling. **85c:60064**
- Robbins, Herbert See Lai, Tse Leung; et al., **85h:62102**
- Sakaguchi, Minoru Best choice problems with full information and imperfect observation. **85j:60077**
- See also Majumdar, A.-A.-K., **85h:60068**
- Shashihvili, M. A. See Dochviri, V. M., **85b:62078**
- Siegmund, D. See Lai, Tse Leung; et al., **85h:62102**
- Sasajowski, K. Optimal stopping of a sequence of maxima over an unobservable sequence of maxima. **85j:60078**
- Theodorescu, Radu See Kalla, Dieter, **85b:62074**

- Tursunov, G. T. Integral estimation of the probability density of an asymptotically uncorrelated process. (Russian) **85m:62067**
- Voltaire, Karl See Miller, Robert A., **85a:90113**
- Yoshida, Minoru Probability maximizing approach to a secretary problem with random change-point of the distribution law of the observed process. **85j:60079**
- Yushkevich, A. A. (with Chitashvili, R. Ya.) Controllable random sequences and Markov chains. (Russian) **85c:93092**

## 62L20 Stochastic approximation

- Anisimova, Z. P. Convergence of procedures for stochastic approximation with "rare" error in measurements. (Russian. English summary) **85c:62223**
- Benderskii, A. M. (with Nevel'son, M. B.) Multivariate asymptotically optimal stochastic approximation procedure. **85f:62104**
- Braun, Henry I. See Stroup, Donna F., **85k:62183**
- Chen, Han Fu Stochastic approximation under correlated measurement errors. **85c:62171**
- Corbu, S. See Iordache, O., **85f:62105**
- Dupač, Václav (with Fiala, Tomáš) Stochastic approximation on a bounded convex set. **85c:62224**
- (with Herkenrath, U.) Erratum: "Stochastic approximation on a discrete set and the multi-armed bandit problem" [Comm. Statist. C—Sequential Anal. 1 (1982), no. 1, 1-25; MR 84c:62109]. **85d:62083**
- Fiala, Tomáš See Dupač, Václav, **85c:62224**
- Herkenrath, U. See Dupač, Václav, **85d:62083**
- Iordache, O. (with Corbu, S.) Stochastic approximation using "up and down" methods. **85f:62105**
- Jiang, J. M. See Titterton, D. M., **85g:62144**
- Kogan, M. M. (with Nelmark, Yu. I.; Ronin, E. I.) The averaging method and stochastic convergence of recursive procedures. (Russian) **85h:62109**
- Korostelev, A. P. A note on upper functions for stochastic approximation procedures. (Russian. English summary) **85g:62140**
- Krasulina, T. P. Estimation of convergence rate of Robbins-Monro process. **85c:62172**
- Kushner, Harold J. (with Shwartz, Adam) An invariant measure approach to the convergence of stochastic approximations with state dependent noise. **85g:62141**
- Lepp, Riho Stochastic approximation type algorithm for the maximization of the probability function. (Russian and Estonian summaries) **85h:62110**
- Lin, Kuang Hsien (with Liu, Ming Lang) On the rate of almost sure convergence of the Robbins-Monro method. **85g:62143**
- Liu, Ming Lang See Lin, Kuang Hsien, **85g:62143**
- Monnes, J. M. Convergence of a general stochastic approximation process under convex constraints and some applications. **85f:62106**
- Nelmark, Yu. I. See Kogan, M. M.; et al., **85h:62109**
- Nevel'son, M. B. See Benderskii, A. M., **85f:62104**
- Obremek, Thomas E. Locating the minimum of a function when the errors of observation have unknown density. **85g:62143**
- Reinmits, P. A new stochastic approximation procedure for obtaining the maximum of an unknown regression function. **85j:62061**
- Ronin, E. I. See Kogan, M. M.; et al., **85h:62109**
- Shwartz, Adam See Kushner, Harold J., **85g:62141**
- Stroup, Donna F. (with Braun, Henry I.) Correction to: "On a new stopping rule for stochastic approximation" [Z. Wahrsch. Verw. Gebiete 60 (1982), no. 4, 535-554; MR 84a:62130]. **85k:62183**
- Theodorescu, Radu (with Wolff, Hans) On dynamic stochastic approximation. (French and German summaries) **85b:62077**
- Tierney, Luke A space-efficient recursive procedure for estimating a quantile of an unknown distribution. **85c:62173**
- Titterton, D. M. (with Jiang, J. M.) Recursive estimation procedures for missing-data problems. **85g:62144**
- Watanabe, Masafumi On convergence of a RM type process with a mixing sequence in a Hilbert space. **85c:62225**
- Wolff, Hans See Theodorescu, Radu, **85b:62077**
- Zhu, Yun Min ★ A truncated stochastic approximation procedure with ARMA measurement errors. **85f:62107**

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- Cottrell, Marie (with Fort, Jean-Claude; Manguyres, Gérard) Large deviations and rare events in the study of stochastic algorithms. **85d:60059**
- Fort, Jean-Claude See Cottrell, Marie; et al., **85d:60059**
- Herkenrath, U. The  $N$ -armed bandit with unimodal structure. **85h:93091**
- Levin, I. K. Design of Lyapunov functions for accuracy analysis of nonlinear stochastic procedures (the scalar case). (Russian and Polish summaries) **85g:93059**
- Manguyres, Gérard See Cottrell, Marie; et al., **85d:60059**
- Pflug, G. Ch. On Kersting's theorem on weak convergence of recursions. **85g:60035**

## 62L99 None of the above, but in this section

## secondary classifications (62L99)

- Edwards, Donald G. See Hsu, Jason C., **85c:62190**
- Hsu, Jason C. (with Edwards, Donald G.) Sequential multiple comparisons with the best. **85c:62190**
- Simons, Gordon (with Woodroffe, Michael) The Cramér-Rao inequality holds almost everywhere. **85h:62002**
- Woodroffe, Michael See Simons, Gordon, **85h:62002**
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- Myers, Donald E. Comment: "A simple sufficient condition for a variogram model to yield positive variances under restrictions" [J. Internat. Assoc. Math. Geol. 15 (1983), no. 4, 553-564; MR 84k:62136] by M. R. Dunn. (Not in MR)



## 62Mxx Inference from stochastic processes

secondary classifications (62Mxx)

- Kendall, Maurice George (with Stuart, Alan; Ord, J. Keith) ★ The advanced theory of statistics. Vol. 3. 85d:62001
- Ord, J. Keith See Kendall, Maurice George; et al., 85d:62001
- Stuart, Alan See Kendall, Maurice George; et al., 85d:62001

## 62M02 Markov processes: hypothesis testing

- Antoniadis, A. Analysis of variance on function spaces. (French and German summaries) 85h:62111
- Arató, M. On parameter estimation in the presence of noise. 85m:62184
- Basawa, I. V. (with Becker, Niels) Remarks on optimal inference for Markov branching processes: a sequential approach. 85a:62128
- Becker, Niels See Basawa, I. V., 85a:62128
- Carvalho, Maria Lucilla (with Müller, D. W.) Asymptotic bilateral tests for branching processes. 85i:62062
- Goodman, Leo A note on a supposed criticism of an Anderson-Goodman test in Markov chain analysis. 85k:62184
- Hudson, Irene L. Asymptotic tests for the continuous time Markov branching process with immigration. 85c:62226
- Karr, Alan F. Estimation and reconstruction for zero-one Markov processes. 85g:62145
- Milhaud, X. (with Oppenheim, G.; Viano, M. C.) Sur la convergence du processus de vraisemblance en variables markoviennes. [Convergence of the likelihood process for Markovian variables] 85a:62129
- Müller, D. W. See Carvalho, Maria Lucilla, 85i:62062
- Oppenheim, G. See Milhaud, X.; et al., 85a:62129
- Viano, M. C. See Milhaud, X.; et al., 85a:62129
- Wegmann, H. Testing the independence of two Poisson processes. 85f:62108
- Yu, Jin Sheng Tests for quasi-independence of embedded Markov chains. 85c:62227

secondary classifications (62M02)

- Birgé, Lucien Tests robustes pour des variables indépendantes et des chaînes de Markov. [Robust tests for independent variables and Markov chains] 85d:62034
- Crowley, John See Voelkel, Joseph G., 85c:62103
- De Dominicis, Rodolfo Spectral analysis of nonlinear semi-Markov processes. 85d:62096
- Golubev, G. K. (with Khas'minskii, R. Z.) Sequential signal detection in Gaussian white noise. (Russian. English summary) 85f:62101
- Khas'minskii, R. Z. See Golubev, G. K., 85f:62101
- Pfeifer, D. An alternative proof of a limit theorem for the Pólya-Lundberg process. 85h:60155a
- Voelkel, Joseph G. (with Crowley, John) Nonparametric inference for a class of semi-Markov processes with censored observations. 85c:62103

## 62M05 Markov processes: estimation

- Ahlbrendt, Norbert (with Draeger, Uta) An attempt to solve approximately the optimal estimation problem for Markov processes by expansion of the a posteriori density in an Edgeworth series. (See 85i:00018a)
- Allen, O. Brian Asymptotic properties of the maximum-likelihood estimator for a class of birth-and-death processes admitting a unique stationary distribution. (French summary) 85h:62112
- Arató, M. Run length control in simulations and performance evaluation and elementary Gaussian processes. 85a:62130
- Bahadur, R. R. Large deviations of the maximum likelihood estimate in the Markov chain case. 85k:62185
- Basu, Arup Asymptotic theory of estimation in nonlinear stochastic differential equations for the multiparameter case. 85k:62186
- The Bernstein-von Mises theorem for a certain class of diffusion processes. 85m:62185
- Bondarev, B. V. Estimation of the unknown parameter in the drift of a stochastic differential equation. (Russian) 85b:62078
- Dezhmukh, Shailaja R. Maximum likelihood estimation for branching migration process. 85m:62186
- Dion, Jean-Pierre (with Labelle, Gilbert; Latour, Alain) Small-sample results for maximum-likelihood estimation in branching processes. (French summary) 85a:62131
- Dodunekova, R. D. Minimax estimation in problems with incomplete data. (Russian) 85g:62146
- Draeger, Uta See Ahlbrendt, Norbert, (85i:00018a)
- Geman, S. An application of the method of sieves: functional estimator for the drift of a diffusion. 85f:62109
- Gillert, Heins The Bernstein-von Mises theorem for nonstationary Markov processes. (See 85i:00018a)
- Glynn, Peter W. Some asymptotic formulas for Markov chains with applications to simulation. (Not in MR)
- Holzhelmer, J. Estimation of the parameters of the Galton-Watson process. (Polish) 85c:62174
- Konecny, Franz Parameter estimation for point processes with partial observations: a filtering approach. 85k:62187
- Künsch, H. Approximations to the maximum likelihood equations for some Gaussian random fields. 85j:62082
- Labelle, Gilbert See Dion, Jean-Pierre; et al., 85a:62131
- Latour, Alain See Dion, Jean-Pierre; et al., 85a:62131
- Le Breton, Alain Propriétés asymptotiques et estimation des paramètres pour les diffusions gaussiennes homogènes hypoelliptiques dans le cas purement explosif. (English summary) [Asymptotic properties and parameter estimation for hypoelliptic homogeneous Gaussian diffusions in the purely explosive case] 85m:62187
- Nguyễn Nam Hồng The test of the discrimination for two Poisson processes. 85m:62188

- Stefanov, V. T. Efficient sequential estimation in finite-state Markov processes. 85m:62189
- Tjøstheim, D. Statistical spatial series modelling. II. Some further results on unilateral lattice processes. 85c:62175
- Vladova, Dimitrinka I. Estimation of unknown parameters in a diffusion-geometric model. (Bulgarian summary) 85m:62190

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- Adke, S. R. (with Manjunath, S. M.) Sequential estimation for continuous time finite Markov processes. 85k:62179
- Boq, Denis Sur la prédiction non paramétrique de variables aléatoires et de mesures aléatoires. [Nonparametric prediction of random variables and random measures] 85c:62062
- Huang, Jun S. (with Yang, Mark C. K.) On the sequence of Bayesian estimates of normal random walk process. 85m:62064
- Ilyushin, V. B. (with Solodovnikov, Yu. V.) Analysis of renewal flows. 85d:60161
- Iris, A. Extended optimality of sequential probability ratio tests. 85f:62097
- Kokic, P. N. (with Weber, N. C.) On the asymptotic behaviour of the jackknife for stochastic processes. 85d:62023
- Manjunath, S. M. See Adke, S. R., 85k:62179
- Naik, D. N. A method for estimating the parameters of reliability models. 85m:62216
- Ochi, Yoshimichi Asymptotic expansions for the distribution of an estimator in the first-order autoregressive process. 85a:62143
- Schmits, Norbert Sequential tests for stochastic processes. (See 85g:62003)
- Solodovnikov, Yu. V. See Ilyushin, V. B., 85d:60161
- Stefanov, V. T. Oblique sequential plans for finite-state Markov processes. 85g:62139
- Weber, N. C. See Kokic, P. N., 85d:62023
- Yang, Mark C. K. See Huang, Jun S., 85m:62064

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- Basawa, I. V. Recent trends in asymptotic optimal inference for dependent observations. 85c:62176
- Bondarev, B. V. Probabilities of large deviations for recurrent estimates of an unknown parameter in the drift of a stochastic equation. (Russian) 85f:62110
- Kligens, Nerutė (with Telksnys, Laimutis) Methods of detecting instants of change of random process properties. 85k:62188
- Rhlei, Raimund Bayesian sequential analysis of multivariate point processes. (See 85m:62003)
- Telksnys, Laimutis See Kligens, Nerutė, 85k:62188

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- Alm, Sven Erik On the distribution of the scan statistic of a Poisson process. 85d:62021
- Gebisioğlu, Ömer L. Multidimensional random processes and spatial ARMA family models. (Not in MR)
- Iris, A. (with Schmits, Norbert) On the optimality of the SPRT for processes with continuous time parameter. (German and Russian summaries) 85g:62135
- Jolivet, E. Étude de la vraisemblance d'un processus de Gauss-Poisson et deux applications. (English summary) [Study of the likelihood of a Gauss-Poisson process, and two applications] 85c:60071
- Rao, M. M. ★ Probability theory with applications. 85k:60003
- Schmits, Norbert See Iris, A., 85g:62135

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- Anisimov, V. V. Asymptotic estimation of parameters of certain classes of ergodic systems. (Russian. English summary) 85g:62147
- Ansley, Craig F. See Kohn, Robert Jacob, 85c:62083
- Barabanov, A. E. Strong convergence of the method of least squares. 85k:62180
- Becker, Niels Estimating population size from capture-recapture experiments in continuous time. 85k:62190
- Borgan, Ørnulf Maximum likelihood estimation in parametric counting process models, with applications to censored failure time data. 85k:62191
- Dacunha-Castelle, Didier (with Florens-Zmirou, Danielle) Choix du pas de discrétisation pour estimer le paramètre d'une diffusion. (English summary) [Choosing a discretization rule to estimate a diffusion parameter] 85m:62191
- Dang Dyk Khau Asymptotic behavior of the variance of an arithmetic mean estimate of the unknown mean value of a homogeneous random field. (Russian. English summary) 85g:62148
- Florens-Zmirou, Danielle See Dacunha-Castelle, Didier, 85m:62191
- Heinrich, Lothar Some estimators for the first-order  $n$ -fold Palm moment measure and their application to the investigation of dependences in point patterns. (German and Russian summaries) 85k:62192
- Ibragimov, I. A. (with Khas'minskii, R. Z.) Estimation of the maximal signal value in Gaussian white noise. (Russian) 85d:62084
- Kabaila, Paul On the asymptotic efficiency of estimators of the parameters of an ARMA process. 85d:62085
- Khas'minskii, R. Z. See Ibragimov, I. A., 85d:62084
- Kishino, Hirohisa The least squares estimation of the transition probabilities of binary processes on the basis of sample paths. 85m:62192
- Kohn, Robert Jacob (with Ansley, Craig F.) On the smoothness properties of the best linear unbiased estimate of a stochastic process observed with noise. 85j:62083
- Kondratkova, T. A. (with Kuritsyn, Yu. G.) Minimax estimation of the mean value of a stationary random process with a correlation function of Pólya class. (Russian) 85h:62079
- Konev, V. V. Bounds for the mean time of attainment of a constant threshold by a nonanticipating functional of a random process of recurrent type. (Russian) 85c:62226
- Kuritsyn, Yu. G. See Kondratkova, T. A., 85h:62079
- Kutayana, Yu. A. Asymptotic expansion of the maximum likelihood estimate of the intensity parameter for inhomogeneous Poisson observations. (See 85i:00018b)

- Lil, K. S. (with Rosenblatt, Murray) Remarks on non-Gaussian linear processes with additive Gaussian noise. (See 85m:62004)
- Martin, Richard John Exact maximum likelihood for incomplete data from a correlated Gaussian process. 85g:62149
- Prakas Rao, B. L. S. Estimation of the drift for diffusion process. 85m:62193  
On some applications of the nonparametric statistical analysis for counting processes. 85j:62084
- Ramlau-Hansen, Henrik Smoothing counting process intensities by means of kernel functions. 85g:62150
- Rosenblatt, Murray See Lil, K. S., (85m:62004)
- Sola, Victor Consistency for the least squares estimator in a transfer function model. 85m:62194
- secondary classifications (62M09)
- Anderson, Robert Frank Dynamics of Bayes estimates for the rate of Poisson processes with gamma priors and convex loss. 85j:62032
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- Dykovichnyi, A. A. Estimation of the correlation function of a homogeneous and isotropic Gaussian random field. (Russian) 85k:60067
- Ibragimov, I. A. (with Khas'minskiĭ, R. Z.) Nonparametric estimation of the value of a linear functional in Gaussian white noise. (Russian. English summary) 85m:62097
- Khas'minskiĭ, R. Z. See Ibragimov, I. A., 85m:62097
- Konev, V. V. Bounds for the mean number of observations in problems of sequential estimation of the parameters of recurrent stochastic processes. 85c:62214
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- Leadbetter, M. R. (with Wold, Diane) On estimation of point process intensities. 85c:60064
- Mandelbaum, Avi Linear estimators and measurable linear transformations on a Hilbert space. 85h:62030
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- Rhinel, Raimund Bayesian sequential analysis of multivariate point processes. (See 85m:62003)
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- Wolpert, Robert (with Berger, James) Incorporating prior information in minimax estimation of the mean of a Gaussian process. 85g:62018
- 62M10 Time series, auto-correlation, regression, etc. [See also 90A20.]
- Aase, Kaut K. Recursive estimation in nonlinear time series models of autoregressive type. 85g:62151
- Abraham, B. (with Ledolter, Johannes) ★ Statistical methods for forecasting. 85c:62230  
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- Andel, J. Marginal distributions of autoregressive processes. (See 85i:00018a)
- Statistical analysis of periodic autoregression. (Russian and Czech summaries) 85k:62193  
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- Anderson, O. D. A simplified theory for the serial covariance structure of ARMA, ARIMA and ARUMA models. 85c:62177  
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- Azzalini, A. Estimation and hypothesis testing for collections of autoregressive time series. 85c:62232
- Basawa, I. V. (with Billard, L.; Srinivasan, R.) Large-sample tests of homogeneity for time series models. 85c:62194
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- Baufays, P. (with Rassen, Jean-Paul) Variance changes in autoregressive model. (See 85m:62006)
- Berger, James (with Wolpert, Robert) Estimating the mean function of a Gaussian process and the Stein effect. 85d:62066
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- Godolphin, E. J. (with Unwin, J. M.) Evaluation of the covariance matrix for the maximum likelihood estimator of a Gaussian autoregressive-moving average process. 85c:62238
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- Günther, Roland On the convergence of some adaptive estimation procedures. (German and Russian summaries) 85a:62135
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- (with Kavalieris, L.) The convergence of autocorrelations and autoregressions. 85f:62111  
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- Kavalieris, L. See Hannan, E. J., 85b:62080 and 85f:62111
- Kedem, Benjamin On the sinusoidal limit of stationary time series. 85g:62156
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- Recent developments in three areas of time series modelling. (See 85g:62003)
- Layton, Allan P. A further note on the detection of Granger instantaneous causality. 85c:62196
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- Levin, David (with Sidi, A.) An autoregressive model with varying coefficients with application to prediction. (See 85g:93006)
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- Li, W. K. (with Hui, Y. V.) Estimation of random coefficient autoregressive process: an empirical Bayes approach. 85c:62182  
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- Lim, K. S. (with Tong, Howell) A statistical approach to difference-delay equation modelling in ecology—two case studies. (Not in MR)
- Linhart, H. (with Zucchini, W.) An orthogonal class of models for time series. 85j:62088
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- Kadiyala, Krishna. A class of almost unbiased and efficient estimators of regression coefficients. (Not in MR)
- Kiefer, Nicholas M. (with Skoog, Gary R.) Local asymptotic specification error analysis. 85m:62143
- Kinal, Terrence (with Lahiri, Kajal) Specification error analysis with stochastic regressors. 85i:62048
- Klepper, Steven (with Leamer, Edward E.) Consistent sets of estimates for regressions with errors in all variables. 85c:62184
- Koenker, Roger. Robust methods in econometrics. 85b:62034
- Krieger, Abba M. (with Gastwirth, J. L.) Interpolation from grouped data for unimodal densities. 85f:62021
- Lahiri, Kajal. See Kinal, Terrence, 85i:62048
- Lalency, F. Theory and practice in optimal aggregation of linear models: application of W. D. Fisher's method to input-output models. 85k:90029
- Lasdon, Leon S. See Norman, Alfred L.; et al., 85a:90072
- Leamer, Edward E. See Klepper, Steven, 85c:62184
- Lee, Tong Hun. See Zellner, Arnold, 85f:62036
- Lin, Chun Tu. Two-stage estimates for a class of systems of regression equations. (Chinese) (Not in MR)



- Lütkepohl, Helmut Linear aggregation of vector autoregressive moving average processes. 85d:62080
- Maddala, G. S. See Chanda, Anup K., 85m:62158
- Mariano, Roberto S. (with Brown, Bryan W.) Prediction-based tests for misspecification in nonlinear simultaneous systems. 85h:62063
- Matsuyama, Keisuke (with Tamura, Yasuhiro) On calculation of causal orderings of variables appearing in simultaneous equations. (French and Russian summaries) 85a:90069
- Miyazaki, S. See Yancey, T. A.; et al., 85j:62068
- Narasimham, Gorti V. L. Estimation and prediction of time-varying parameter economic models. (See 85g:93006)
- Newey, Whitney K. A method of moments interpretation of sequential estimators. 85d:62080
- Nicholls, D. F. (with Pagan, A. R.) Heteroscedasticity in models with lagged dependent variables. 85g:62116
- Nijman, Th. E. See Palm, F. C., 85m:90010
- Norman, Alfred L. (with Lasdon, Leon S.; Hain, Jun Kuan) A comparison of methods for solving and optimizing a large nonlinear econometric model. 85a:90072
- Olsen, Randall J. Distributional tests for selectivity bias and a more robust likelihood estimator. (Not in MR)
- Pagan, A. R. See Nicholls, D. F., 85g:62116
- Palm, F. C. (with Nijman, Th. E.) Missing observations in the dynamic regression model. 85m:90010
- Powell, James L. The asymptotic normality of two-stage least absolute deviations estimators. 85h:62015
- Least absolute deviations estimation for the censored regression model. 85m:62150
- Pudney, S. E. Estimating latent variable systems when specification is uncertain: generalized component analysis and the eliminant method. 85a:62076
- Rothenberg, Thomas J. Hypothesis testing in linear models when the error covariance matrix is nonscalar. 85m:62153
- Sargan, J. D. (with Bhargava, Alok) Maximum likelihood estimation of regression models with first order moving average errors when the root lies on the unit circle. 85j:62090
- Savin, N. E. See Evans, G. B. A., (85d:62003)
- Sevestre, Patrick (with Trognon, A.) Propriétés de grands échantillons d'une classe d'estimateurs des modèles autorégressifs à erreurs composées. (English and Spanish summaries) [Large-sample properties of a class of estimators of autoregressive error-component models] 85c:62242
- Sims, Christopher See Hayaashi, Fumio, 85c:62160
- Skoog, Gary R. See Kiefer, Nicholas M., 85m:62143
- Stapleton, David C. (with Young, Douglas J.) Censored normal regression with measurement error on the dependent variable. 85g:62119
- Stewart, Mark B. On least squares estimation when the dependent variable is grouped. 85a:62104
- Sugihara, Souichi Efficient estimation method of transfer function model with ARMA errors. 85c:62081
- Tamura, Yasuhiro See Matsuyama, Keisuke, 85a:90069
- (Theil, Henri) See Koenker, Roger, 85b:62034
- Toyooka, Yasuyuki Second order structure of mean squared error of generalized least squares estimator adjusted by estimated residuals in a location model with autoregressive error. 85c:62085
- Trognon, A. See Sevestre, Patrick, 85c:62242 and Gouriéroux, Christian, 85k:62141
- Tse, Y. K. Testing linear and log-linear regressions with autocorrelated errors. 85d:62073
- Ullah, Aman (with Zinde-Walah, Victoria) On the robustness of LM, LR, and W tests in regression models. 85k:62149
- Waldman, Donald M. A note on algebraic equivalence of White's test and a variation of the Godfrey/Breusch-Pagan test for heteroscedasticity. 85c:62052
- (Welch, Roy E.) See Koenker, Roger, 85b:62034
- (White, Halbert) See Byron, R. P., 85a:62092
- (Wold, Hermann O. A.) See Systems under indirect observation: causality-structure-prediction, 85i:62072
- Xekalaki, Evdokia Linear regression and the Yule distribution. 85m:62157
- Yancey, T. A. (with Judge, G. G.; Miyazaki, S.) Some improved estimators in the case of possible heteroscedasticity. 85j:62068
- Young, Douglas J. See Stapleton, David C., 85g:62119
- Zellner, Arnold (with Lee, Tong Hun) Corrigendum: "Joint estimation of relationships involving discrete random variables" [Econometrica 33 (1965), 382-394; MR 31 #2791]. 85f:62036
- Zinde-Walah, Victoria See Ullah, Aman, 85k:62149
- Advances in econometrics ★ Advances in econometrics. 85d:62003
- Aix-en-Provence ★ Advances in econometrics. 85d:62003
- Cartigny ★ Systems under indirect observation: causality-structure-prediction. Part I, II. 85i:62072
- Conference:
- Econometric decision models ★ Econometric decision models. 85a:90010
- Systems under indirect observation ★ Systems under indirect observation: causality-structure-prediction. Part I, II. 85i:62072
- Congress:
- Econometric Society ★ Advances in econometrics. 85d:62003
- Econometric decision models ★ Econometric decision models. 85a:90010
- Hagen ★ Econometric decision models. 85a:90010
- Systems under indirect observation: causality-structure-prediction ★ Systems under indirect observation: causality-structure-prediction. Part I, II. 85i:62072
- 62P25 Sociometrics
- Litvak, B. G. ★ Экспертная информация. (Russian) [Expert information] 85a:62184

Nikolov, Georgi S. A representing factor for a set of attributes of a nominal and additive attribute space. (Bulgarian. English summary) (See 85a:00018)

secondary classifications (62P25)

- Badaloni, M. (with Vinci, E.) Remarks on similarity indices. (Italian. English summary) 85g:62006
- De, R. N. A note on two stages aggregation of variables through equal weighting in every stage. 85j:62001
- Lenk, Peter J. The structure of a random relation with an application to a nomination network. 85h:92058
- Lueker, G. S. On the average difference between the solutions to linear and integer knapsack problems. 85i:90091
- Vinci, E. See Badaloni, M., 85g:62006
- Wong, George Y. Rank-one round robin designs. 85d:62064

62P99 None of the above, but in this section

Khovanov, N. V. ★ Математические основы теории шкал измерения качества. (Russian) [Mathematical foundations of the theory of scales of measurement of quality] 85j:62112

secondary classifications (62P99)

- Chitashvili, R. Ya. See Orlov, Yu. K., (Not in MR)
- Laniel, Normand See Moore, Marc, 85i:62069
- Maurin, M. (with Touboul, E.) Codage optimal et sur-optimal sur un tableau invariant. [Optimal and superoptimal coding on an invariant table] 85h:92060
- Moore, Marc (with Laniel, Normand) Reconstruction échantillonnale d'une forme convexe. (English summary) [Sample reconstruction of a convex form] 85i:62069
- Orlov, Yu. K. (with Chitashvili, R. Ya.) The statistical significance of Zipf's distribution. (Russian. English and Georgian summaries) (Not in MR)
- Todd, P. H. The intrinsic geometry of biological surface growth. (See 85g:93006)
- Touboul, E. See Maurin, M., 85h:92060

## 62Q05 Statistical tables

- Bol'shev, L. N. (with Smirnov, N. V.) ★ Таблицы математической статистики. (Russian) [Tables of mathematical statistics] 85a:62185
- (Chibisov, D. M.) See Bol'shev, L. N., 85a:62185
- (David, F. N.) See Subrahmaniam, Kathleen, 85j:62114
- Flury, Bernhard N. See Pillai, K. C. S., 85j:62113
- Frank, Richard (with Jayachandran, T.) Tables for a new multivariate goodness-of-fit test. (Not in MR)
- Gottlieb, R. (with Lienert, G. A.; Ludwig, O.; Rockenfelder, K.) Tables and applications of the Bonferroni  $t$ -statistics: a revision of Dunn's simultaneous  $t$ -tests. 85m:62237
- Jayachandran, T. See Frank, Richard, (Not in MR)
- Lienert, G. A. See Gottlieb, R.; et al., 85m:62237
- Ludwig, O. See Gottlieb, R.; et al., 85m:62237
- Pillai, K. C. S. (with Flury, Bernhard N.) Percentage points of the largest characteristic root of the multivariate beta matrix. 85j:62113
- (Prokhorov, Ju. V.) See Bol'shev, L. N., 85a:62185
- Rockenfelder, K. See Gottlieb, R.; et al., 85m:62237
- (Shmerling, D. S.) See Bol'shev, L. N., 85a:62185
- Smirnov, N. V. See Bol'shev, L. N., 85a:62185
- Subrahmaniam, Kathleen (with Subrahmaniam, Kocherlakota) Some extensions to Miss F. N. David's tables of sample correlation coefficient: distribution function and percentiles. 85j:62114
- Subrahmaniam, Kocherlakota See Subrahmaniam, Kathleen, 85j:62114
- Tables:
- Bonferroni  $t$ -statistics See Gottlieb, R.; et al., 85m:62237
- Mathematical statistics See Bol'shev, L. N., 85a:62185
- Sample correlation coefficient See Subrahmaniam, Kathleen, 85j:62114

## 65-XX NUMERICAL ANALYSIS

secondary classifications (65-XX)

Mülthel, H. N. A-Stabilität bei Kollokationsmethoden mit mehrfachen Knoten. [A-stability in collocation methods with multiple knots] (Not in MR)

secondary classifications (65-XX)

Pachner, Jaroslav ★ Handbook of numerical analysis applications. 85b:65002

Handbook:

Numerical analysis applications See Pachner, Jaroslav, 85b:65002

## 65-00 Handbooks, dictionaries, and other reference works

- (Cowell, Wayne R.) See Sources and development of mathematical software, 85g:65001
- Crandall, Stephen H. ★ Engineering analysis. 85m:65001
- Sources and development of mathematical software ★ Sources and development of mathematical software. 85g:65001

secondary classifications (65-00)

- (Abramowitz, Milton) See Handbook: Mathematical functions with formulas, graphs, and mathematical tables, 85j:00005a and Pocketbook of mathematical functions, 85j:00005b
- (Danos, Michael) See Pocketbook of mathematical functions, 85j:00005b
- (Rafelski, Johann) See Pocketbook of mathematical functions, 85j:00005b

(Stegun, Irene A.) See *Handbook: Mathematical functions with formulas, graphs, and mathematical tables*, 85j:00005a and *Pocketbook of mathematical functions*, 85j:00005b

#### Handbook:

**Mathematical functions** ★ *Pocketbook of mathematical functions*, 85j:00005b  
**Mathematical functions with formulas, graphs, and mathematical tables** ★ *Handbook of mathematical functions with formulas, graphs, and mathematical tables*, 85j:00005a

**Pocketbook of mathematical functions** ★ *Pocketbook of mathematical functions*, 85j:00005b

### 65-01 Elementary exposition; textbooks

Alefeld, Götz (with Herzberger, Jürgen) ★ *Introduction to interval computations*, 85d:65001

(Arushanyan, O. B.) See Rice, John R., 85i:65001

Atkinson, Laurence V. (with Harley, P. J.) ★ *An introduction to numerical methods with Pascal*, 85a:65001

Bobkov, V. V. See Krylov, V. I.; et al., 85c:65002

(Cantini, Gilles) See Dhatt, Gouri, 85m:65002

Dennis, John E., Jr. (with Schnabel, R. B.) ★ *Numerical methods for unconstrained optimization and nonlinear equations*, 85j:65001

Dhatt, Gouri (with Tounot, Gilbert) ★ *The finite element method displayed*, 85m:65002  
 Prüfling, Rudolf (with Regler, Meinhard) ★ *Monte-Carlo-Methoden*. (German) [Monte Carlo methods] 85b:65001

Harley, P. J. See Atkinson, Laurence V., 85a:65001

Herzberger, Jürgen See Alefeld, Götz, 85d:65001

Jain, M. K. ★ *Numerical solution of differential equations*, 85c:65001

Karpus, Walter J. See Vemuri, V., 85c:65001

Khlodystov, V. V. See Makarov, Vladimir Leonidovich, 85g:65002

Krylov, V. I. (with Bobkov, V. V.; Monastyrnyi, P. I.) ★ *Начала теории вычислительных методов*. (Russian) [The beginnings of the theory of numerical methods] 85c:65002

Makarov, Vladimir Leonidovich (with Khlodystov, V. V.) ★ *Сплайн-аппроксимация функций*. (Russian) [Spline approximation of functions] 85g:65002

Monastyrnyi, P. I. See Krylov, V. I.; et al., 85c:65002

Pachner, Jaroslav ★ *Handbook of numerical analysis applications*, 85b:65002

Regler, Meinhard See Prüfling, Rudolf, 85b:65001

Rice, John R. ★ *Матричные вычисления и математическое обеспечение*. (Russian) [Matrix computations and mathematical software] 85i:65001

(Rokne, Jon) See Alefeld, Götz, 85d:65001

Schnabel, R. B. See Dennis, John E., Jr., 85i:65001

Tounot, Gilbert See Dhatt, Gouri, 85m:65002

Vemuri, V. (with Karpus, Walter J.) ★ *Digital computer treatment of partial differential equations*, 85c:65001

(Voevodin, V. V.) See Rice, John R., 85i:65001

#### Handbook:

**Numerical analysis applications** See Pachner, Jaroslav, 85b:65002

#### secondary classifications (65-01)

Cryer, Colin W. ★ *Numerical functional analysis*, 85g:46001

Gould, Floyd J. (with Tolle, Jon W.) ★ *Complementary pivoting on a pseudomanifold structure with applications in the decision sciences*, 85h:90126

Kostomarov, D. See Tikhonov, A. N., 85a:00026

Kuznetsov, Yu. A. See Voevodin, V. V., 85i:15003

Niederdrank, Klaus ★ *Die endliche Fourier- und Walsh-Transformation mit einer Einführung in die Bildverarbeitung*. (German) [The finite Fourier and Walsh transformation with an introduction to image processing] 85g:94001

(Petrova, M. S.) See Tikhonov, A. N., 85a:00026

Tikhonov, A. N. (with Kostomarov, D.) ★ *Algo acerca de la matemática aplicada*. (Spanish) [Narratives on applied mathematics] 85a:00026

Tolle, Jon W. See Gould, Floyd J., 85h:90126

Vainikko, Gennadi ★ *Методы решения линейных некорректно поставленных задач в гильбертовых пространствах*. (Russian) [Methods for solving linear ill-posed problems in Hilbert spaces] 85c:65005

Voevodin, V. V. (with Kuznetsov, Yu. A.) ★ *Матрицы и вычисления*. (Russian) [Matrices and calculations] 85i:15003

### 65-02 Advanced exposition (research surveys, monographs, etc.)

Amerbaev, V. M. (with Utembaev, N. A.) ★ *Численный анализ лагранжевского спектра*. [Numerical analysis of the Lagrange spectrum] 85d:65002

Brakhagen, Frans ★ *Zur Konvergenz des ADI-Verfahrens in der Methode der finiten Elemente*. (German) [On the convergence of the ADI procedure in the finite element method] 85k:65001

Coleman, Thomas F. ★ *Large sparse numerical optimization*, 85i:65002

Fletcher, C. A. J. ★ *Computational Galerkin methods*, 85i:65003

Gekele, Eckart ★ *Discretization methods for stable initial value problems*, 85c:65003

George, Alan (with Liu, Joseph W. H.) ★ *Численное решение больших разреженных систем уравнений*. (Russian) [Numerical solution of large sparse systems of equations] 85c:65004

Grebennikov, A. I. ★ *Метод сплайнов и решение некорректных задач теории приближения*. (Russian) [The method of splines and solution of ill-posed problems of approximation theory] 85h:65001

(Ikramov, Kh. D.) See Parlett, B. N., 85b:65003 and George, Alan, 85c:65004

(Kuznetsov, Yu. A.) See Parlett, B. N., 85b:65003

(Laurie, D. P.) See *Numerical solution of partial differential equations: theory, tools and case studies*, 85b:65002

Liu, Joseph W. H. See George, Alan, 85c:65004

Mamedov, Ya. D. *Studies on approximate methods by collaborators at the Department of Numerical Mathematics of Azerbaijan State University*. (Russian) 85e:65002

Marchuk, G. I. (with Shaldurov, V. V.) ★ *Difference methods and their extrapolations*, 85c:65003

(Noor, A. K.) See *State-of-the-art surveys on finite element technology*, 85h:65003

Parlett, B. N. ★ *Симметричная проблема собственных значений*. (Russian) [The symmetric eigenvalue problem] 85b:65003

(Pitkey, Walter D.) See *State-of-the-art surveys on finite element technology*, 85h:65003

Shaldurov, V. V. See Marchuk, G. I., 85g:65003

Utembaev, N. A. See Amerbaev, V. M., 85d:65002

Vainikko, Gennadi ★ *Методы решения линейных некорректно поставленных задач в гильбертовых пространствах*. (Russian) [Methods for solving linear ill-posed problems in Hilbert spaces] 85c:65005

Vasilenko, V. A. ★ *Сплайн-функции: теория, алгоритмы, программы*. (Russian) [Spline functions: theory, algorithms, programs] 85g:65004

Wimp, Jet ★ *Computation with recurrence relations*, 85f:65001

Zadiraka, V. K. ★ *Теория вычисления преобразования Фурье*. (Russian) [The theory of calculating the Fourier transform] 85b:65004

#### Bibliography:

**Finite element technology** ★ *State-of-the-art surveys on finite element technology*, 85h:65003

**Numerical solution of partial differential equations: theory, tools and case studies** ★ *Numerical solution of partial differential equations: theory, tools and case studies*, 85b:65002

**Pretoria** ★ *Numerical solution of partial differential equations: theory, tools and case studies*, 85b:65002

**State-of-the-art surveys on finite element technology** ★ *State-of-the-art surveys on finite element technology*, 85h:65003

#### Summer seminar:

**Numerical solution of partial differential equations** ★ *Numerical solution of partial differential equations: theory, tools and case studies*, 85b:65002

#### secondary classifications (65-02)

Anderson, Dale A. (with Tannehill, John C.; Pletcher, Richard H.) ★ *Computational fluid mechanics and heat transfer*, 85j:76001

Axelsson, O. (with Barker, V. A.) ★ *Finite element solution of boundary value problems*, 85m:65116

Barker, V. A. See Axelsson, O., 85m:65116

(Belytschko, Ted) See *Computational methods for transient analysis*, 85d:73003

Fairweather, Graeme See Seward, W. L.; et al., 85m:65097

Golub, Gene H. (with Van Loan, Charles F.) ★ *Matrix computations*, 85h:65063

Holt, Maurice ★ *Numerical methods in fluid dynamics*, 85b:76005

(Hughes, Thomas J. R.) See *Computational methods for transient analysis*, 85d:73003

Johnston, R. L. See Seward, W. L.; et al., 85m:65097

Mikhlin, S. G. ★ *Погрешности вычислительных процессов*. (Russian) [Errors of computational processes] 85m:65034

Pletcher, Richard H. See Anderson, Dale A.; et al., 85j:76001

Seward, W. L. (with Fairweather, Graeme; Johnston, R. L.) *A survey of higher-order methods for the numerical integration of semidiscrete parabolic problems*, 85m:65097

Tannehill, John C. See Anderson, Dale A.; et al., 85j:76001

Van Loan, Charles F. See Golub, Gene H., 85h:65063

**Computational methods for transient analysis** ★ *Computational methods for transient analysis*, 85d:73003

### 65-03 Historical (must also be assigned at least one classification number from Section 01)

(Courant, Richard) See Williamson, Frank, Jr., 85k:65002

Williamson, Frank, Jr. *Direct methods in the calculus of variations: the rediscovery of Richard Courant's work on the finite element method*, 85k:65002

#### secondary classifications (65-03)

Böckmann, Christine *Die Einheit von Grundlagenforschung und angewandter Forschung in der numerischen Mathematik*. [The unity of basic research and applied research in numerical mathematics] (Not in MR)

(Boom, H. J.) See Greville, T. N. E., 85e:01060

Bownds, John M. *Comments on the performance of a Fortran subroutine for certain Volterra equations*. (See 85e:65005)

Collatz, Lothar *Richard von Mises als numerischer Mathematiker*. [Richard von Mises as numerical mathematician] 85b:01049

Dorfman, Robert *The discovery of linear programming*, 85e:01034

Dutka, Jacques *Richardson extrapolation and Romberg integration*. (French and German summaries) 85e:01021

Gattesio, Luigi *Guido Fubini's contribution to iterative algorithms*. (Italian) 85e:01024

Greville, T. N. E. ★ *Selected papers of T. N. E. Greville*, 85e:01060

(Meek, D. S.) See Greville, T. N. E., 85e:01060

Miel, George *Of calculations past and present: the Archimedean algorithm*, 85a:01066

(von Mises, Richard) See Collatz, Lothar, 85b:01049

Orchard-Hays, William *History of mathematical programming systems*, 85m:01049

Samarskii, A. A. *The difference method*. (Russian) (See 85g:01004)

(Stanton, R. G.) See Greville, T. N. E., 85e:01060

Tokarenko, A. M. *Origination of algebraic methods in the creation of mechanisms for reproducing mathematical relations*. (Ukrainian. Russian summary) 85k:01032

#### Bibliography:

Greville, Thomas N. E. See Greville, T. N. E., 85e:01060

#### Biography:

Greville, Thomas N. E. See Greville, T. N. E., 85e:01060

# 65-04 Explicit machine computation and programs (not the theory of computation or programming)

- Bégin, D. (with Hecht, F.; Vidrasu, M.) Presentation and evolution of the Club Modulef: a library of computer procedures for finite element analysis. (See 85g:65007)
- Dendy, Joel E., Jr. Black box multigrid for nonsymmetric problems. 85a:65002
- Disinger, Glenn R. (with Schiesser, William E.) Some methods for minimizing Jacobian and derivative evaluations in large-scale ODE problems. (See 85i:90014)
- (Döhler, B.) See Lang, Wilgard, 85g:65005
- Eisenstat, Stanley C. (with Elman, Howard C.; Schultz, Martin H.; Sherman, Andrew H.) The (new) Yale Sparse Matrix Package. (See 85g:65007)
- Elman, Howard C. See Eisenstat, Stanley C.; et al., (85g:65007)
- Galkin, V. Ya. (with Zhukovskii, E. L.) A computer algorithm for the Fourier transform without round-off errors. (Russian) (Not in MR)
- Gary, John (with McCormick, Steve F.; Sweet, Roland) Successive overrelaxation, multigrid, and preconditioned conjugate gradients algorithms for solving a diffusion problem on a vector computer. 85a:65003
- Hanke, M. (with Lamour, R.) Software for ordinary boundary value problems. 85h:65004
- Hecht, F. See Bégin, D.; et al., (85g:65007)
- Hindmarsh, Alan C. ODEPACK, a systematized collection of ODE solvers. (See 85i:00014)
- Kincaid, David R. (with Young, David M.) The ITPACK project: past, present, and future. (See 85g:65007)
- Kónya, Ilona (with Szabados, Tamás) ESBA2: a subroutine package for solving elliptic boundary value problems by small computers. (German and Russian summaries) 85c:65006
- Lamour, R. See Hanke, M., 85h:65004
- Lang, Wilgard ★ Ein Programmsystem für Matrixeigenwertprobleme. (German) [A programming system for matrix eigenvalue problems] 85g:65005
- McCormick, Steve F. See Gary, John; et al., 85a:65003
- (Meyer, A.) See Lang, Wilgard, 85g:65005
- Petsold, Linda R. A description of DASSL: a differential/algebraic system solver. (See 85i:00014)
- Proskurovskii, W. CMMPAK—the capacitance matrix software package. (See 85g:65007)
- Rabinowitz, Philip Software for multiple numerical integration. (See 85h:65006)
- Rice, John R. Machine and compiler effects on the performance of elliptic PDE software. (See 85i:00014)
- Building elliptic problem solvers with ELLPACK. (See 85g:65007)
- Sapagovas, Mifodijus (with Sapagovienė, Dangutė) NEPEL—source language for a program package for solution of elliptic and parabolic equations. (Russian. English and Lithuanian summaries) 85h:65005
- Sapagovienė, Dangutė See Sapagovas, Mifodijus, 85h:65005
- Schiesser, William E. See Disinger, Glenn R., (85i:00014)
- Schultz, Martin H. See Eisenstat, Stanley C.; et al., (85g:65007)
- Sherman, Andrew H. See Eisenstat, Stanley C.; et al., (85g:65007)
- (Skurt, L.) See Lang, Wilgard, 85g:65005
- (Sommer, J.-P.) See Lang, Wilgard, 85g:65005
- Sweet, Roland See Gary, John; et al., 85a:65003
- Szabados, Tamás See Kónya, Ilona, 85c:65006
- Vidrasu, M. See Bégin, D.; et al., (85g:65007)
- Young, David M. See Kincaid, David R., (85g:65007)
- Zhukovskii, E. L. See Galkin, V. Ya., (Not in MR)

## secondary classifications (65-04)

- Bégin, D. The Club Modulef—a library of computer procedures for finite element analysis. 85h:65232
- de Doncker-Kapenga, Elise See Plessens, Robert; et al., 85b:65022
- Grenander, Ulf ★ Mathematical experiments on the computer. 85f:90016
- Kahaner, D. K. See Plessens, Robert; et al., 85b:65022
- Lorenzini, M. C. (with Puleo, G.; Tortorici Macaluso, Adele) Multiprecision arithmetic package and application to the calculation of Jacobi, Hermite, Laguerre, Legendre and Chebyshev polynomials. (Italian) 85a:65036
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**Pokhodael, B. B.** Optimality of the Maraglia method for simulating discrete distributions. (Russian. English summary) **85a:65015**

Transformation of random bits into binomially distributed random variables. (Russian. English summary) **85j:65004**

**Ripley, B. D.** Computer generation of random variables: a tutorial. (French summary) **85a:65016**

The lattice structure of pseudorandom number generators. **85i:65010**

**Rubin, Paul A.** Generating random points in a polytope. **85g:65016**

**Salasagawa, H.** Stratified rejection and squeeze method for generating beta random numbers. **85h:65019**

**Schmitz, Norbert** See **Exner, Helmut**, **85g:65015**

**Shparinskii, I. E.** A multiplicative pseudo-random number transducer. (Russian) **85m:65006**

**Stadlauer, Ernst** ★ Die Erzeugung von Zufallszahlen aus der  $t$ -Verteilung. (German) [The generation of random numbers from the  $t$ -distribution] **85i:65011**

**Tolstykh, G. D.** Generation of quasirandom sequences. (Russian) **85a:65017**

**Wang, Lin Shu** See **Li, Feng Lin**, **85a:65013**

**Yarnollik, V. N.** See **Havel, Jan**; et al., **85a:65012**

#### secondary classifications (65C10)

**Anděl, J.** Dependent random variables with a given marginal distribution. (Russian and Czech summaries) **85b:60014**

**Barbu, Gh.** On computer generation of random variables and random vectors by transformations of uniform random variables. (Romanian. English summary) **85i:65177**

**Dudewicz, Edward J.** (with van der Meulen, Edward C.) Entropy-based statistical inference. II. Selection-of-the-best/complete ranking for continuous distributions on  $(0, 1)$ , with applications to random number generators. **85e:62043**

**Furst, Merrick** (with Lipton, Richard; Stockmeyer, Larry) Pseudorandom number generation and space complexity. **85m:68010**

**Lawrance, A. J.** (with Lewis, P. A. W.) Generation of some first-order autoregressive Markovian sequences of positive random variables with given marginal distributions. (See **85h:60001a**)

**Lewis, P. A. W.** See **Lawrance, A. J.**, (**85h:60001a**)

**Lipton, Richard** See **Furst, Merrick**; et al., **85m:68010**

**van der Meulen, Edward C.** See **Dudewicz, Edward J.**, **85e:62043**

**Niederreiter, Harald** Applications des corps finis aux nombres pseudo-aleatoires. [Finite fields applied to pseudorandom numbers] (See **85g:11009**)

**Pearson, R. B.** (with Richardson, John L.; Toussaint, Doug) A fast processor for Monte Carlo simulation. **85a:65009**

**Plumstead, Joan B.** Inferring a sequence generated by a linear congruence. (See **85i:60007**)

**Richardson, John L.** See **Pearson, R. B.**; et al., **85a:65009**

**Stockmeyer, Larry** See **Furst, Merrick**; et al., **85m:68010**

**Toussaint, Doug** See **Pearson, R. B.**; et al., **85a:65009**

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**Synopsis:**

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#### 65C20 Models, numerical methods

**Celnik, Alvaro** Nonlinear multidimensional models, least squares and reduced residuals. (See **85b:60006**)

**Drummond, I. T.** (with Duane, S.; Horgan, R. R.) The stochastic method for numerical simulations: higher order corrections. **85a:65018**

**Duane, S.** See **Drummond, I. T.**; et al., **85a:65018**

**Horgan, R. R.** See **Drummond, I. T.**; et al., **85a:65018**

#### secondary classifications (65C20)

**Coppin, C.** (with Greenspan, D.) Discrete modeling of minimal surfaces. **85b:49002**

**Cottet, G.-H.** (with Raviart, P.-A.) Particle methods for the one-dimensional Vlasov-Poisson equations. **85c:82048**

**Darsow, W. F.** See **Erber, T.**; et al., **85a:65006**

**Erber, T.** (with Rynne, T. M.; Darsow, W. F.; Frank, M. J.) The simulation of random processes on digital computers: unavoidable order. **85a:65006**

**Frank, M. J.** See **Erber, T.**; et al., **85a:65006**

**Galsone, Luciano** The use of positive matrices for the analysis of the large time behavior of the numerical solution of reaction-diffusion systems. **85b:65086**

**Greenspan, D.** See **Coppin, C.**, **85b:49002**

**Kubitzek, Milan** (with Marek, Miloš) ★ Computational methods in bifurcation theory and dissipative structures. **85j:58117**

**Mallows, C. L.** A new system of frequency curves. **85e:60013**

**Marek, Miloš** See **Kubitzek, Milan**, **85j:58117**

**Raviart, P.-A.** See **Cottet, G.-H.**, **85c:82048**

**Rynne, T. M.** See **Erber, T.**; et al., **85a:65006**

**Volpato, Mario** On the characterization, discretization and simulation of the Poisson process. (Italian. English summary) **85h:60156**

#### 65C99 None of the above, but in this section

**Lutskii, G. M.** (with Penchev, O. I.) ★ Вычисление элементарных функций методом цифра за цифрой в избыточных системах счисления. (Russian) [Calculation of elementary functions by the digit-by-digit method in redundant number systems] (Not in MR)

**Penchev, O. I.** See **Lutskii, G. M.**, (Not in MR)

#### 65Dxx Numerical approximation {Primarily algorithms; for theory, see 41-XX.}

##### secondary classifications (65Dxx)

(Arushanyan, O. B.) See **Rice, John R.**, **85i:65001**

**Rice, John R.** ★ Матричные вычисления и математическое обеспечение. (Russian) [Matrix computations and mathematical software] **85i:65001**

(Voevodin, V. V.) See **Rice, John R.**, **85i:65001**

#### 65D05 Interpolation

**Alvares Dias, L.** See **Gómez Montenegro, A.**, **85f:65008**

**Barnhill, R. E.** (with Little, F. F.) Three- and four-dimensional surfaces. **85h:65017**

(with Stead, Sarah E.) Multistage trivariate surfaces. **85h:65020**

**Barrar, R. B.** (with Loeb, H. L.) Characterising the divided difference weights for extended complete Tchebycheff systems. **85f:65007**

**Berrut, Jean-Paul** Barycentric Formeln zur trigonometrischen Interpolation. I. (English and French summaries) [Barycentric formulas for trigonometric interpolation. I] **85m:65007**

**Butland, J.** See **Fritsch, F. N.**, **85h:65022**

**Cline, A. K.** See **Renka, Robert Joseph**, **85j:65005**

**Cuyt, Annie** (with Verdonk, Brigitte M.) General order Newton-Padé approximants for multivariate functions. **85k:65005**

**Delvoe, F.-J.** On discrete trivariate blending interpolation. **85d:65011**

(with Posdorf, H.) Boolean trivariate interpolation. **85h:65021**

**Ding, Hao Jiang** See **Xu, Bo Hou**; et al., **85m:65012**

**Foley, Thomas A.** Full Hermite interpolation to multivariate scattered data. **85i:65012**

**Frank, Richard** See **Nielson, Gregory M.**, **85g:65019**

**Fritsch, F. N.** (with Butland, J.) A method for constructing local monotone piecewise cubic interpolants. **85h:65022**

**Ganev, Khristo G.** Entwicklung einiger neuen Methoden zum genaueren glatten Interpolieren und deren mechanischen Modelle. (English, Russian and Bulgarian summaries) [Development of new smooth interpolation methods and mechanical models] **85a:65019**

**Gasca González, Mariano** (with Lebrón, E.) A note on recurrence interpolation formulae for certain sets of points in  $\mathbb{R}^2$ . **85m:65008**

**Gómez Montenegro, A.** (with Alvares Dias, L.) Obtaining parametric expressions for piecewise interpolation polynomials. (Spanish. English summary) **85f:65008**

**Graves-Morris, P. R.** Vector valued rational interpolants. I. **85a:65020**

Vector-valued rational interpolants. II. **85h:65023**

**He, Jia Xing** (with Zhu, An Min; Wei, Jia Ning) Blending function interpolation on a three-dimensional simplex. (Chinese. English summary) **85m:65009**

A boundary interpolation formula on triangles. (Chinese) (Not in MR)

**Huang, You Qun** (with Williams, Jack) A note on an algorithm for interpolating rationals. **85m:65010**

See also **Zhu, Gong Qin**, **85g:65020**

**Hyman, James M.** Accurate monotonicity preserving cubic interpolation. **85a:65021**

**Lawson, Charles L.**  $C^1$  surface interpolation for scattered data on a sphere. **85g:65018**

**Lebrón, E.** See **Gasca González, Mariano**, **85m:65008**

**Lingner, Tom** See **Mettke, Holger**, **85a:65023**

**Little, F. F.** See **Barnhill, R. E.**, **85h:65017**

**Litvin, O. N.** Generalized nonlinear interpolation and solution of boundary value problems. (Russian) **85a:65022**

**Loeb, H. L.** See **Barrar, R. B.**, **85f:65007**

**Mettke, Holger** (with Lingner, Tom) Ein Verfahren zur konvexen kubischen Splineinterpolation. [A method for convex cubic spline interpolation] **85a:65023**

**Mu, Ding Yi** Asymptotic behavior of the polynomial factor in the interpolation error. **85i:65013**

**Navlakha, Jainendra K.** An analytical technique for 3-dimensional interpolation. **85k:65006**

**Nielson, Gregory M.** A method for interpolating scattered data based upon a minimum norm network. **85b:65007**

(with Frank, Richard) A method for construction of surfaces under tension. **85g:65019**

**Pang, Zhi Yuan** On the basis functions in tetrahedral elements with 16 and 20 degrees of freedom. (Chinese. English summary) **85m:65011**

**Posdorf, H.** See **Delvoe, F.-J.**, **85h:65021**

**Rauchhaus, Heidrun** Zur Numerik der Interpolation von Funktionen zweier Variabler. [The numerics of the interpolation of functions of two variables] **85k:65007**

**Renka, Robert Joseph** (with Cline, A. K.) A triangle-based  $C^1$  interpolation method. **85j:65005**

**Rohrer, C. H.** Some quadratic quasi-interpolants. (See **85i:65004**)

**Siemaszko, Wojciech** Thiele-type branched continued fractions for two-variable functions. **85h:65024**

**Smith, Philip W.** Truncation and factorization of bi-infinite matrices. **85h:65025**

**Sŏ, Bong Hak** Formulas for obtaining  $p$ -functions with absolute resolution, surplus, and basis systems of interpolation functions of several variables. (Korean. English summary) **85c:65011**

**Soong, Tsai C.** Some useful formulas for multivariable interpolation and integration. (See **85g:93006**)

**Stead, Sarah E.** See **Barnhill, R. E.**, **85h:65020**

**Tubof'tsev, M. F.** Application of the Chebyshev theory of approximation in the estimation of parameters of certain digital systems. (Russian) **85h:65026**

**Verdonk, Brigitte M.** See **Cuyt, Annie**, **85k:65005**

**Wang, Xing Hua** (with Yang, Yi Qun) The remainder of interpolation for the functions of low order smoothness. (Chinese. English summary) **85i:65014**

**Wei, Jia Ning** See **He, Jia Xing**; et al., **85m:65009**

**Werner, Helmut** A reliable and numerically stable program for rational interpolation of Lagrange data. (German summary) **85i:65015**



Williams, Jack See Huang, You Qun, 85m:65010

Xu, Bo Hou (with Zhang, Liang Chi; Ding, Hao Jiang) On completeness of triangular elements. (Chinese. English summary) 85m:65012

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Zhou, Jia Bin On the expansion of Chebyshev polynomials in irregular grids. 85k:65006

Zhu, An Min See He, Jia Xing; et al., 85m:65009

Zhu, Gong Qin (with Huang, You Qun) The construction of the table of interpolating (osculatory) rationals. (Chinese. English summary) 85g:65020

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Amerbaev, V. M. (with Utembaev, N. A.) ★ Численный анализ лагерровского спектра. [Numerical analysis of the Laguerre spectrum] 85d:65002

Bassenski, Günter (with Delvos, F.-J.) Accelerating the rate of convergence of bivariate Fourier expansions. 85h:65010

Betten, J. Interpolation methods for tensor functions. (See 85g:93006)

Bobkov, V. V. See Krylov, V. I.; et al., 85c:65002

Brünger, G. Rounding error analysis of interpolation procedures. (German summary) 85h:65098

Bujalska, A. See Smarzewski, R., 85g:65025

Calogero, F. Erratum: "Lagrangian interpolation and differentiation" [Lett. Nuovo Cimento (2) 35 (1982), no. 9, 273-278]. 85b:41002

Interpolation, differentiation and solution of eigenvalue problems in more than one dimension. 85h:65228

Cherenack, P. Conditions for cubic spline interpolation on triangular elements. 85k:65009

Delvos, F.-J. (with Schempp, Walter) On precision sets of interpolation projectors. 85c:41005

See also Bassenski, Günter, 85h:65010

Durand, Loyal Lagrangian differentiation, integration and eigenvalues problems. 85h:65174

Forst, Wilhelm Interpolation und numerische Differentiation. (English summary) [Interpolation and numerical differentiation] 85i:65026

Gasca González, Mariano (with Ramírez, V.) Interpolation systems in  $\mathbb{R}^k$ . 85j:41004

Haverkamp, R. Zur Konvergenz der Ableitungen von Interpolationspolynomen. (English summary) [Convergence of derivatives of interpolating polynomials] 85j:41007

Iijima, Taiso Theory of interpolation by  $M$ -times continuously differentiable piecewise-connected polynomials. 85h:41005

Korneichuk, N. P. Some exact inequalities for differentiable functions and an estimate of the approximation of the functions and their derivatives by interpolation cubic splines. (Russian) 85c:41011

Krylov, V. I. (with Bobkov, V. V.; Monastyrnyi, P. I.) ★ Начала теории вычислительных методов. (Russian) [The beginnings of the theory of numerical methods] 85c:65002

Litvin, O. N. Interpolation by "Boolean sums" of operators. (Russian. English summary) 85m:41009

Lloyd, Stuart P. Optimal dual output extended hydrophone. 85k:94013

Lubinsky, D. S. Geometric convergence of Lagrangian interpolation and numerical integration rules over unbounded contours and intervals. 85f:65020

le Méhauté, Alain On Hermite elements of class  $C^q$  in  $\mathbb{R}^3$ . (See 85g:41002)

Michalik, B. A new interpolation formula in the form of a continued fraction. 85k:40002

Monastyrnyi, P. I. See Krylov, V. I.; et al., 85c:65002

Nadbitova, N. S. A class of convergence of a Newtonian  $(B, I)$ -interpolation process. (Russian) 85h:30049

Oelschlägel, Dieter (with Rauchhaus, Heidrun) Ein Algorithmus zur Intervallinterpolation mit algebraischen Polynomen und Vergleich mit bekannten Verfahren. [An algorithm for interval interpolation with algebraic polynomials and comparison with known procedures] 85i:65060

Ramírez, V. See Gasca González, Mariano, 85j:41004

Rauchhaus, Heidrun See Oelschlägel, Dieter, 85i:65060

Rivlin, T. J. The best strong uniqueness constant for a multivariate Chebyshev polynomial. 85k:41041

Romanov, V. S. Multiple interpolation by Chebyshev splines. (Russian) 85d:41007

Salzer, H. E. An osculatory extension of Cauchy's rational interpolation formula. (German and Russian summaries) 85c:41025

Schempp, Walter See Delvos, F.-J., 85c:41005

Shparlinskii, I. E. The rate of convergence of Newton's interpolation process and the size of certain codes. (Russian) 85f:94016

Shvedov, A. S. Interpolation by local cubic splines and construction of a surface passing through given points. (Russian) 85h:65031

Skorobogat'ko, V. Ya. ★ Теория ветвящихся цепных дробей и ее применение в вычислительной математике. (Russian) [The theory of branching continued fractions and its application in numerical mathematics] 85j:40005

Smarzewski, R. (with Bujalska, A.) Uniform convergence of cubic and quadratic  $X$ -spline interpolants. 85g:65025

Sonnevend, Gy. An optimal sequential algorithm for the uniform approximation of convex functions on  $[0, 1]^2$ . 85k:90124

Uluchev, Rumen K. Interpolation by continued fractions at nodes with multiplicities. (Bulgarian. English summary) (See 85e:00015)

Utembaev, N. A. See Amerbaev, V. M., 85d:65002

Vakarchuk, B. S. See Vakarchuk, S. B., 85m:41012

Vakarchuk, S. B. (with Vakarchuk, B. S.) Approximation of parametrically specified surfaces by splines, which are pasted together from pieces of translation surfaces, in the Hausdorff metric. (Russian) 85m:41012

Väiläho, Hannu On the Hermite interpolation polynomial. 85j:41010

Watson, G. S. Smoothing and interpolation by Kriging and with splines. 85i:86001

#### 65D07 Splines

Bacchelli Montefusco, L. (with Casciola, G.) Analysis of methods for the numerical evaluation of "basic  $L$ -splines". 85g:65021

Bujalska, A. See Smarzewski, R., 85g:65025

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Chen, Tian Ping A class of higher-order lacunary interpolation splines. (Chinese) (Not in MR)

Cheng, Zheng Xing Convexity-preserving interpolating spline curves. (Chinese. English summary) 85a:65024

Cherenack, P. Conditions for cubic spline interpolation on triangular elements. 85k:65009

Chui, Charles K. (with Wang, Ren Hong) Bivariate  $B$ -splines on triangulated rectangles. (See 85g:41002)

Costantini, Paolo Some remarks on the existence of monotonic and convex quadratic interpolation splines. (Italian. English summary) 85m:65013

Dahmen, Wolfgang (with Micchelli, Charles A.) Multivariate splines—a new constructive approach. 85a:65025

Delbourgo, R. (with Gregory, J. A.)  $C^2$  rational quadratic spline interpolation to monotonic data. 85i:65016

Dobra, L.-I. D. (with Meshueva, I. V.) An adaptive algorithm for approximation by parametric cubic splines. (Russian) 85a:65026

Fu, Qing Xiang The norm of type  $(l^1)$  cubic spline interpolation operators. (Chinese. English summary) 85d:65012

Ghissetti, Aldo Interpolation with splines satisfying a suitable condition. (Italian. English summary) 85i:65017

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Hu, Shang Xu Application of quadratic splines to chemical engineering calculations. (Chinese. English summary) 85g:65022

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Huang, Da Ren (with Wang, Jian Zhong) A Budan-Fourier theorem for  $L$  splines and its application. (Chinese) (Not in MR)

Kochevar, Peter An application of multivariate  $B$ -splines to computer-aided geometric design. 85k:65010

Kuzhii, L. I. (with Popov, B. A.) Investigation of the accuracy of an approximation by uniform polynomial splines. (Russian) 85h:65028

Kvasov, B. I. Numerical differentiation and integration on the basis of interpolation parabolic splines. (Russian) 85h:65029

Lénárd, Margit Approximation and short time prediction of economic time series by spline functions. 85h:65030

Maciejewski, M. Hyperbolic splines with given derivatives at the knots. 85g:65023

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Nürnberg, Günther Strong unicity of best approximations: a numerical aspect. 85g:65024

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Shvedov, A. S. Interpolation by local cubic splines and construction of a surface passing through given points. (Russian) 85h:65031

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Totkov, G. A. On the convergence of some interpolation splines in a uniform metric. (Bulgarian. English and Russian summaries) 85c:65012

Trigante, R. A method for constructing smoothing splines with linear programming. (Italian. English summary) 85i:65019

Uba, P. Convergence of interpolational cubic splines on nonuniform grids. (Russian. English and Estonian summaries) 85h:65032

Walha, Grace Cross validated spline methods for direct and indirect sensing experiments. (See 85m:62005)

Wang, Jian Zhong See Huang, Da Ren, (Not in MR)

Wang, Ren Hong See Chui, Charles K., (85g:41002)

Xiong, Hua Xin (with Hu, Xin Ru) On the solution of even order vector derivative expressions for spline functions of degree  $2n + 1$ . (Chinese. English summary) 85h:65033

Yang, Yi Qun Remainder estimates of a class of interpolatory cubic splines. (Chinese. English summary) 85m:65014

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Álvarez Díaz, L. See Gómez Montenegro, A., 85f:65006

Andreev, Andrei St. Convergence rate for spline collocation to Fredholm integral equation of second kind. 85d:65067

Banks, H. T. (with Rosen, I. Gary) Spline approximations for linear nonautonomous delay systems. 85b:65056

Bao, Ming Tang (with Chang, Dao Rong) Convergence theorems for cubic splines which satisfy a general two-point boundary condition. (Chinese) 85f:41001

Bevershenko, I. I. A method for constructing a spline-solution for some classes of ordinary differential equations. (Russian) 85b:65057

de Boor, Carl (with Höllig, Klaus) Bivariate box splines and smooth pp functions on a three direction mesh. 85f:41004

- Bras, M. See Stratford, K. J., 85b:55006
- Brannigan, M. (with Eyre, David) Splines and the Galerkin method for solving the integral equations of scattering theory. 85c:55032a  
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(with Eyre, David) Erratum: "Splines and the projection collocation method for solving integral equations in scattering theory" [J. Math. Phys. 24 (1983), 177-183; MR 84b:65125]. 85c:55032c
- Brunner, Hermann Nonpolynomial spline collocation for Volterra equations with weakly singular kernels. 85d:65069
- Butland, J. See Pritsch, F. N., 85b:55023
- Cao, Jia Ding Operators of Kantorovich type and integral Schoenberg splines. (Russian) 85b:41036
- Chang, Dao Rong See Bao, Ming Tang, 85f:41001
- Chen, Tian Ping Error estimates and asymptotic expansion for Hermite splines. (Chinese. English summary) 85c:41015  
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Structural properties of functions described by splines. (Chinese) 85c:41005  
A class of lacunary interpolating splines of high degree. 85c:41004  
Asymptotic expansions of fifth-order splines. (Chinese) (Not in MR)
- Chui, Charles K. (with Wang, Ren Hong) A generalization of univariate splines with equally spaced knots to multivariate splines. (Chinese summary) 85b:41008  
(with Hu, Ying Sheng) Geometric properties of certain bivariate splines. (See 85g:41003)
- Cinquin, Philippe Optimal reconstruction of surfaces using parametric spline functions. 85b:41021
- Dahmen, Wolfgang (with Micchelli, Charles A.) On the linear independence of multivariate  $B$ -splines. I. Triangulations of simplices. 85c:41016a  
(with Micchelli, Charles A.) Translates of multivariate splines. 85c:41033  
(with Micchelli, Charles A.) On the linear independence of multivariate  $B$ -splines. II. Complete configurations. 85c:41016b
- Dierckx, Paul An algorithm for experimental data deconvolution using spline functions. 85f:65122  
Computation of least-squares spline approximations to data over incomplete grids. 85k:65013
- Dunn, Mark H. (with Hariharan, S. I.) Numerical computations on one-dimensional inverse scattering problems. 85i:78016
- Dwyer, Thomas A. W., III See de Figueiredo, Rui J. P., 85c:93041
- El-Hawary, H. M. See Sallam, S., 85i:65061
- Eubank, R. L. The hat matrix for smoothing splines. 85f:62008
- Eyre, David See Brannigan, M., 85c:55032a; 85c:55032b and 85c:55032c
- de Figueiredo, Rui J. P. (with Dwyer, Thomas A. W., III) Approximation-theoretic methods for nonlinear deconvolution and inversion. 85c:93041
- Fritsch, F. N. (with Butland, J.) A method for constructing local monotone piecewise cubic interpolants. 85b:65022
- Fu, Qing Xiang (0, 3) quintic lacunary interpolation splines. (Chinese. English summary) 85i:41004
- Gómez Montenegro, A. (with Álvarez Díaz, L.) Obtaining parametric expressions for piecewise interpolation polynomials. (Spanish. English summary) 85f:65008
- Goodman, T. N. T. (with Lee, Seng Luan) Cardinal interpolation by  $D^m$ -splines. 85b:41006  
Solvability of cardinal spline interpolation problems. 85g:41004
- Grebennikov, A. I. \* Метод сплайнов и решение некорректных задач теории приближений. (Russian) [The method of splines and solution of ill-posed problems of approximation theory] 85b:65001
- Greville, T. N. E. (with Schoenberg, I. J.; Sharma, Ambikeshwar) The behavior of the exponential Euler spline  $S_n(x; t)$  as  $n \rightarrow \infty$  for negative values of the base  $t$ . 85c:41017
- Györfi, János Eine spezielle Spline-Funktion und das Cauchy-Problem. [A special spline function and the Cauchy problem] 85i:65060
- Hämmerlin, Günther The application of blending-splines to solve integral equations approximately. (See 85i:65004)
- Hariharan, S. I. See Dunn, Mark H., 85i:78016
- Höllig, Klaus See de Boor, Carl, 85f:41004
- Hu, Ri Zhang Spline collocation for generalized multipoint boundary value problems. (Chinese. English summary) 85a:65120
- Hu, Ying Sheng See Chui, Charles K., (85g:41002)
- Huang, Da Ren (with Wang, Jian Zhong) The Budan-Fourier theorem for  $L$ -splines and its application. (Chinese) 85k:41013  
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Arndt, Herbert Numerical solution of retarded initial value problems: local and global error and stepsize control. 85h:65142

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Interval iterations for including a set of solutions. (German summary) 85f:65045

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- Wan, Hong Hui Iterative processes with high rate of convergence. (Chinese. English summary) 85m:65041
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- Werner, Wilhelm A generalized companion matrix of a polynomial and some applications. 85b:65042
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- Zhang, Jing Zhong (with Yang, Lu) 2<sup>nd</sup>-order cut-factor method to find the roots of a polynomial. (Chinese. English summary) 85h:65111
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- Zhidkov, E. P. (with Makrel'ov, I. V.; Semerdzhiev, Kh. I.) ★ Два метода для одновременного нахождения всех корней экспоненциальных уравнений. (Russian) [Two methods for simultaneously finding all roots of exponential equations] 85c:65060
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- Alexander, J. C. (with Slud, Eric V.) Global convergence rates of piecewise-linear continuation methods: a probabilistic approach. 85j:90042
- Anastassiou, E. G. (with Ioakimidis, N. I.) A new method for obtaining exact analytical formulae for the roots of transcendental functions. 85i:30075
- Ben-Israel, Adi (with Ben-Tal, A.) On applications of  $F$ -convexity in numerical methods. 85j:90045
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- Björck, Åke A block QR algorithm for partitioning stiff differential systems. 85a:65099
- Bresal, F. Approximation of bifurcation points. (Russian) 85m:58050
- Cornelius, H. On the acceleration of an interval-arithmetic iteration method. 85f:65044
- Crus, André (with Sesma, Javier) Modulus and phase of the reduced logarithmic derivative of the Hankel function. 85b:33006
- Curry, James H. (with Garnett, Lucy; Sullivan, Dennis P.) On the iteration of a rational function: computer experiments with Newton's method. 85c:30040
- Dennis, John E., Jr. (with Schnabel, R. B.) ★ Numerical methods for unconstrained optimization and nonlinear equations. 85j:65001
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- Gati, Georg The complexity of solving polynomial equations by quadrature. 85b:12003
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- Hurley, M. (with Martin, Clyde F.) Newton's algorithm and chaotic dynamical systems. 85j:58101
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- Oishi, Shin'ichi (with Takase, Tadaaki; Yamamura, Kiyotaka) Vector labelling method in fixed points algorithm and array processors. 85h:65287
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- Saigal, R. Computational complexity of a piecewise linear homotopy algorithm. 85j:90053
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- Spliteri, P. Simulation d'exécutions parallèles pour la résolution d'inéquations variationnelles stationnaires. [Simulation of parallel execution for solving stationary variational inequalities] 85h:65123
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- Wang, Yu Min A uniqueness theorem for limit cycles of the Liénard equation. (Chinese) 85j:34052
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- Bandurin, N. G. (with Nikolaev, A. P.) On the solution of nonlinear problems. (Russian) 85c:65061
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- Chu, Moody T. On a numerical treatment for the curve-tracing of the homotopy method. 85c:65062
- Cuyt, Annie (with Van der Cruyssen, Paul) Abstract Padé-approximants for the solution of a system of nonlinear equations. 85i:65089
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- Cash, J. R. Two new finite difference schemes for parabolic equations. **85m:65088**
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- Burkovskaya, V. L. (with Makarov, Vladimir Leonidovich) Applicability of the method of nets and the method of lines to the solution of a class of problems of optimal control theory. (Russian) 85j:49003
- Di Lena, G. (with Trigiante, D.) On the stability and convergence of lines method. 85f:65087
- Disinger, Glenn R. (with Schiesser, William E.) Some methods for minimizing Jacobian and derivative evaluations in large-scale ODE problems. (See 85i:00014)
- Hindmarsh, Alan C. See Johnson, S. H., 85b:80001
- Johnson, S. H. (with Hindmarsh, Alan C.) Numerical dynamic simulation of solid-fluid reactions in isothermal porous spheres. 85b:80001
- Makarov, Vladimir Leonidovich See Burkovskaya, V. L., 85j:49003
- Pulgar, Milan Solutions of abstract hyperbolic equations by Rothe method. (Russian and Czech summaries) 85d:34009
- Ramos, J. I. Numerical studies of one-dimensional unsteady flame propagation. (See 85i:00014)
- Schiesser, William E. See Disinger, Glenn R., (85i:00014)
- Sobolevskii, P. E. See Ashyralyev, A. O., 85m:65046
- Trigiante, D. See Di Lena, G., 85f:65087

## 65M25 Method of characteristics

- Friedel, Klaus (with Toparkus, Heins) Konvergenz von Einschrittverfahren für kanonisch-hyperbolische Systeme. [Convergence of single-step methods for canonically hyperbolic systems] 85g:65109b
- Ioltukhovskii, A. A. (with Mishin, I. V.; Sushkevich, T. A.) Solution of the transport equation in a three-dimensionally inhomogeneous scattering layer by the method of characteristics. (Russian) 85h:65208
- Li, Mai Cun (with Yan, Bang Liang) Characteristic curve method for the Korteweg-de Vries equation. (Chinese. English summary) 85h:65209
- Mishin, I. V. See Ioltukhovskii, A. A.; et al., 85h:65208
- Sushkevich, T. A. See Ioltukhovskii, A. A.; et al., 85h:65208
- Toparkus, Heins Runge-Kutta-Methoden für kanonisch hyperbolische Systeme. [Runge-Kutta methods for canonically hyperbolic systems] 85g:65109a (See also Friedel, Klaus, 85g:65109b)
- Yan, Bang Liang See Li, Mai Cun, 85h:65209

## secondary classifications (65M25)

- Bercovier, Michel (with Pironneau, Olivier; Sastri, V.) Finite elements and characteristics for some parabolic-hyperbolic problems. 85a:65145
- Chakravathy, Sukumar R. (with Osher, Stanley) Numerical experiments with the Osher upwind scheme for the Euler equations. 85b:70003
- Corkill, R. W. (with Stewart, J. M.) Numerical relativity. II. Numerical methods for the characteristic initial value problem and the evolution of the vacuum field equations for space-times with two Killing vectors. 85b:83006b
- Friedrich, Helmut See Stewart, J. M., 85b:83006a
- Osher, Stanley See Chakravathy, Sukumar R., 85b:70003
- Pironneau, Olivier See Bercovier, Michel; et al., 85a:65145
- Sastri, V. See Bercovier, Michel; et al., 85a:65145
- Stewart, J. M. (with Friedrich, Helmut) Numerical relativity. I. The characteristic initial value problem. 85b:83006a (See also Corkill, R. W., 85b:83006b)

## 65M30 Improperly posed problems

- Carasso, Alfred S. A stable marching scheme for an ill-posed initial value problem. 85b:65090
- Chen, Yung Ming (with Liu, Jia Qi) An iterative numerical algorithm for solving multiparameter inverse problems of evolutionary partial differential equations. 85i:65124
- Liu, Jia Qi Inverse problems of differential equations, and numerical methods for them. (Chinese. English summary) 85g:65110 (See also Chen, Yung Ming, 85i:65124)
- Pulatov, P. A. See Vabishchevich, P. N., 85h:65210
- Vabishchevich, P. N. (with Pulatov, P. A.) A method of numerical solution of the Cauchy problem for elliptic equations. (Russian) 85h:65210

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- Fyt'ev, Yu. P. Morphological analysis of images. (Russian) 85a:68172

## 65M50 Mesh generation and refinement

- Berger, Marsha (with Oliger, Joseph) Adaptive mesh refinement for hyperbolic partial differential equations. 85h:65211 (See also Hedstrom, Gerald; et al., (85i:00014))
- Carey, G. F. See Mueller, A. C., (85i:00014)
- Civan, Faruk (with Knapp, Roy M.) Solution of convection-dominated transport equations by coordinate stretching. (See 85i:00014)
- Harten, Amiram (with Hyman, James M.) Self-adjusting grid methods for one-dimensional hyperbolic conservation laws. 85g:65111
- Hedstrom, Gerald (with Rodrigue, Garry; Berger, Marsha; Oliger, Joseph) Adaptive mesh refinement for 1-dimensional gas dynamics. (See 85i:00014)
- Hyman, James M. See Harten, Amiram, 85g:65111



- Knapp, Roy M. See Civan, Faruk. (85i:00014)  
 Madsen, Nial K. Nonstiff adaptive moving node techniques. (See 85i:00014)  
 McDonald, B. H. (with Richards, D. J.; Mills, P. J.) Application of dynamic grid control in the RAMA code. (See 85i:00014)  
 Mills, P. J. See McDonald, B. H.; et al. (85i:00014)  
 Mueller, A. C. (with Carey, G. F.) Moving meshes in time-dependent finite element calculations. (See 85i:00014)  
 Olliger, Joseph See Berger, Marsha. 85h:65211 and Hedstrom, Gerald; et al. (85i:00014)  
 Richards, D. J. See McDonald, B. H.; et al. (85i:00014)  
 Rodrigues, Garry See Hedstrom, Gerald; et al. (85i:00014)  
 Shokin, Yu. I. (with Urusov, A. I.) Über eine Methode zur Erzeugung von bewegten Rechengittern für die Lösung hyperbolischer Gleichungen. [A method for generating movable computation grids for the solution of hyperbolic equations] 85h:65212  
 Urusov, A. I. See Shokin, Yu. I. 85h:65212

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- Adamsom, J. General method for producing a boundary-fitted orthogonal curvilinear mesh. 85k:65098  
 Gary, John (with McCormick, Steve F.; Sweet, Roland) Successive overrelaxation, multigrid, and preconditioned conjugate gradients algorithms for solving a diffusion problem on a vector computer. 85a:65003  
 Goloviznin, V. M. (with Korshunov, V. K.; Sabitova, A.; Samarskaya, E. A.) Stability of variational-difference schemes of gas dynamics. (Russian) 85g:76020  
 Korshunov, V. K. See Goloviznin, V. M.; et al. 85g:76020  
 McCormick, Steve F. See Gary, John; et al. 85a:65003  
 Sabitova, A. See Goloviznin, V. M.; et al. 85g:76020  
 Samarskaya, E. A. See Goloviznin, V. M.; et al. 85g:76020  
 Sweet, Roland See Gary, John; et al. 85a:65003

## 65M60 Finite elements, Rayleigh-Ritz and Galerkin methods, finite methods

- Angrand, Françoise (with Dervieux, Alain) Some explicit triangular finite element schemes for the Euler equations. 85k:65079  
 Babuška, I. See Bieterman, M., 85d:65052a and 85d:65052b  
 Bercovier, Michel (with Pironneau, Olivier; Sastri, V.) Finite elements and characteristics for certain problems of parabolic-hyperbolic type. (Russian) 85f:65094  
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 Bieterman, M. (with Babuška, I.) The finite element method for parabolic equations. I. A posteriori error estimation. 85d:65052a  
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 Caldwell, James See Saunders, Roy; et al. 85h:65214  
 Chang, Qian Shun See Guo, Bo Ling. (Not in MR)  
 Chen, Feng Su A Galerkin method to cylindrical KdV equations. 85f:65095  
 Chevallier, Jacques Discrete time finite element schemes for first order symmetric hyperbolic systems. 85g:65112  
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 Douglas, Jim, Jr. (with Roberts, Jean E.) Numerical methods for a model for compressible miscible displacement in porous media. 85d:65053  
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 Galeone, Luciano (with Lopes, Luciano) A Galerkin numerical method for a class of nonlinear reaction-diffusion systems. 85e:65044  
 Gellinas, Robert J. (with Doss, Said K.; Vajk, J. Peter; Djomehri, Jahed; Miller, Keith) Moving finite elements in 2-D fluid dynamics examples. (See 85i:00014)  
 Geveci, Tunc On the convergence of Galerkin approximation schemes for second-order hyperbolic equations in energy and negative norms. 85m:65099  
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 (with Mitchell, Andrew Roland; Griffiths, David F.) The stability of Petrov-Galerkin method for solving convection-diffusion equation. 85i:65126  
 (with Mitchell, Andrew Roland) The stability of the Petrov-Galerkin method for solving initial-boundary value problems of convection-diffusion equations. (Chinese) 85b:65091  
 (with Vazquez, Luis) Numerical solution of a nonlinear wave equation in polar coordinates. 85f:65096  
 Guo, Bo Ling (with Chang, Qian Shun) A Galerkin finite element method and error estimate for a class of multidimensional higher-order generalized BBM-KdV systems of equations. (Chinese) (Not in MR)  
 Han, Hou De (with Kellogg, R. Bruce) A method of enriched subspaces for the numerical solution of a parabolic singular perturbation problem. (See 85d:65004)  
 Herbst, B. M. (with Schoombie, S. W.; Mitchell, Andrew Roland) Equidistributing principles in moving finite element methods. 85k:65081  
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- Huang, Yong Hong Galerkin finite element method for parabolic equations. (Chinese. English summary) 85c:65118  
 Ji, Zhong Zhen The nonlinear computational stability of the Galerkin finite element approximation. (Chinese. English summary) 85i:65128  
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 Kellogg, R. Bruce See Han, Hou De. (85d:65004)  
 Keramidas, G. A. The effects of artificial viscosity on time integration schemes for nonlinear partial differential equations. (See 85i:00014)  
 Kim, KJ On the mathematical foundation of a finite element solution for parabolic partial differential equations. (Korean. English summary) 85c:65119  
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 Layton, William Stable and unstable numerical boundary conditions for Galerkin approximations to hyperbolic systems. 85d:65054  
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 Russell, Thomas F. Galerkin time stepping along characteristics for Burgers' equation. (See 85i:00014)  
 Safonov, M. S. See Modanova, V. V., 85b:65092  
 Sammon, Peter Fully discrete approximation methods for parabolic problems with nonsmooth initial data. 85a:65147  
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 Sun, Che On the error estimates of finite element methods for some quasilinear diffusion equations. (See 85g:65010)  
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 Zienkiewicz, O. C. Finite elements in the time domain. (See 85h:65003)

## secondary classifications (65M60)

- Alt, Hans Wilhelm (with Luckhaus, Stephan) Quasilinear elliptic-parabolic differential equations. 85c:35059  
 Bar-Yoseph, Pinchas (with Olek, Shmuel) Asymptotic and finite element approximations for heat transfer in rotating compressible flow over an infinite porous disk. 85j:76022  
 Brakhagen, Franz ★ Zur Konvergenz des ADI-Verfahrens in der Methode der finiten Elemente. (German) [On the convergence of the ADI procedure in the finite element method] 85k:65001  
 Brundrit, G. B. (with van Foreest, D.) Discontinuous test functions in Galerkin approaches in ocean modelling. (See 85h:65007)  
 (Cantin, Gilles) See Dhatt, Gouri. 85m:65002  
 Caprili, M. (with Lazzeretti, R.) A new curved element for solving transient heat conduction problems. (Italian summary) 85i:80003  
 Chen, Feng Su A Galerkin method to strongly nonlinear KdV equations and Schrödinger equations. 85f:76032  
 Damjanik, F. See Owen, D. R. J., 85a:80001  
 Dhatt, Gouri (with Touzet, Gilbert) ★ The finite element method displayed. 85m:65002  
 Donea, J. (with Giuliani, S.; Laval, H.; Quartapelle, L.) Time-accurate solution of advection-diffusion problems by finite elements. 85h:76003  
 Favorak, A. P. See Korahya, T. K.; et al. 85d:65060  
 Fletcher, C. A. J. ★ Computational Galerkin methods. 85i:65003  
 van Foreest, D. See Brundrit, G. B., (85h:65007)  
 Gastaldi, L. Approximation of a second order Stefan-like problem by means of a finite element method. 85i:80005

- Giuliani, S. See Donea, J.; et al. 85h:76003
- Goldak, John A. See Meriç, R. Alsan, 85h:76007
- Ionescu, I. (with Molnár, József) Sur l'estimation de l'erreur dans  $L^2(\Omega)$  pour un problème parabolique. [Error estimation in  $L^2(\Omega)$  for a parabolic problem] 85a:65140
- Korshiya, T. K. (with Tishkin, V. F.; Samarskii, A. A.; Favorskii, A. P.; Shashkov, M. Yu.) ★ Вариационно-операторные разностные схемы для уравнений математической физики. (Russian) [Variational-operator difference schemes for equations of mathematical physics] 85d:65060
- Landa, P. S. The generalized Bubnov-Galerkin method for investigation of waves in distributed self-oscillatory systems. (Russian) 85e:70017
- Lapin, A. V. Investigation of two-layer difference schemes for parabolic variational inequalities. (Russian) 85m:65090
- Laurie, D. P. Time discretization in parabolic equations. (See 85h:65002)
- Laval, H. See Donea, J.; et al. 85h:76003
- Lasseret, R. See Caprili, M. 85i:80003
- Luckhaus, Stephan See Alt, Hans Wilhelm, 85c:35059
- Meriç, R. Alsan (with Goldak, John A.) A transformation method for a convection-diffusion problem. (Turkish summary) 85b:76007
- Mitchell, Andrew Roland (with Morris, J. L.) A self-adaptive difference scheme for the nonlinear Schrödinger equation. (Arabic summary) 85i:65115
- Mohsen, Mohammad Farrukh N. (with Pinder, George Francis) Analytical solution of the transport equation using a polynomial initial condition for verification of numerical simulators. 85f:76097
- Molnár, József See Ionescu, I. 85a:65140
- Morris, J. L. See Mitchell, Andrew Roland, 85i:65115
- Navon, I. M. A Numerov-Galerkin technique applied to a finite-element shallow-water equations model with enforced conservation of integral invariants and selective lumping. 85e:86002
- (Noye, John) See Computational techniques for differential equations, 85d:65006
- Olek, Shmuel See Bar-Yoseph, Pinchas, 85f:76022
- Owen, D. R. J. (with Damjanic, F.) Reduced numerical integration in thermal transient finite element analysis. 85a:80001
- Pinder, George Francis See Mohsen, Mohammad Farrukh N., 85f:76097
- Quartapelle, L. See Donea, J.; et al. 85h:76003
- Samarskii, A. A. See Korshiya, T. K.; et al. 85d:65060
- Sermer, Pavol A Galerkin method for elliptic-hyperbolic type equations. 85a:65161
- Shashkov, M. Yu. See Korshiya, T. K.; et al. 85d:65060
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- Tishkin, V. F. See Korshiya, T. K.; et al. 85d:65060
- Tomescu, Anca (with Tomescu, F. M. G.) The Galerkin solution of the general mixed problem for the parabolic equation. 85c:35059
- Tomescu, F. M. G. See Tomescu, Anca, 85c:35059
- Touzot, Gilbert See Dhett, Gouri, 85m:65002
- Turetaev, I. D. See Zlotnik, A. A. 85h:65205
- Zlotnik, A. A. (with Turetaev, I. D.) Sharp error estimates of variable direction methods for the heat equation. (Russian) 85h:65205

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- Bakkes, G. N. (with Botha, J. F.) The global element method for parabolic differential equations. (See 85h:65007)
- Botha, J. F. See Bakkes, G. N., (85h:65007)
- Chang, Peter H. Numerical solutions of shock curves of hyperbolic 1-conservation laws. 85b:65093
- Fulton, Scott R. (with Taylor, G. D.) On the Gottlieb-Turkel time filter for Chebyshev spectral methods. 85m:65102
- Ji, Zhong Zhen (with Zeng, Qing Cun) An example of instability in a nonlinear computation by the spectral expansion method. (Chinese) (Not in MR)
- Lavery, John E. Solution of quasilinear parabolic initial-boundary value problems by the method of pseudolinear equations. 85i:65130
- Lawson, John Douglas (with Swayne, D. A.) Compounding of rational approximations with applications to heat-conduction problems. (Not in MR)
- Liu, Ru Xun See Xia, Nan, 85f:65100
- Nguyen, V. V. Collocation simulator for a system of coupled transport operators. (See 85i:00014)
- Osher, Stanley Smoothing for spectral methods. (See 85g:76003)
- Swayne, D. A. See Lawson, John Douglas, (Not in MR)
- Taylor, G. D. See Fulton, Scott R., 85m:65102
- Vabishchevich, P. N. (with Vabishchevich, T. N.) A method of numerical solution of Stefan's problem. (Russian) 85b:65094
- Vabishchevich, T. N. See Vabishchevich, P. N., 85b:65094
- Vakul'chik, P. A. Investigation of the convergence of the Newton method of solution of nonlinear difference equations approximating a mixed problem for a quasilinear hyperbolic system. (Russian) 85i:65131
- Xia, Nan (with Liu, Ru Xun) A discontinuous solution method—discrete weighted Riemann method. (Chinese. English summary) 85f:65100
- Zeng, Qing Cun See Ji, Zhong Zhen, (Not in MR)

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- Belic, Milivoj R. (with Vuković, Slobodan; Lax, Melvin) New efficient algorithm for solution of the driven nonlinear Schrödinger equation. 85g:81009
- di Benedetto, Emmanuele (with Spigler, Renato) An algorithm for the one-phase Stefan problem. 85c:35126
- Dzhetysbaev, E. O. (with Sabelfeld, K. K.) Solution of a mixed problem for equations of parabolic and hyperbolic type by the Monte Carlo method. (Russian) 85i:65006
- Glaschoff, Klaus (with Sprekels, J.) The regulation of temperature by thermostats and set-valued integral equations. 85d:45013
- Glaiko, V. B. (with Kondorskaya, E. E.) Question of constructing Tikhonov regularizing algorithms for non-one-dimensional inverse problems of heat conduction. 85c:80004

- Kondorskaya, E. E. See Glaiko, V. B., 85c:80004
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- Korman, Phillip On application of the monotone iteration scheme to noncoercive elliptic and hyperbolic problems. 85c:35011
- Labutin, S. A. An approximate solution of the Stefan problem on an interval. (Russian) 85k:35103
- Lax, Melvin See Belic, Milivoj R.; et al., 85g:81009
- Le Gruyer, Erwan Traitement de la convection en dimension deux. [A two-dimensional numerical treatment of convection] 85f:76014
- Manoranjan, V. S. (with Mitchell, Andrew Roland; Sleeman, B. D.; Yu, Kuo Pen) Bifurcation studies in reaction-diffusion. 85h:35031
- Mitchell, Andrew Roland See Manoranjan, V. S.; et al., 85h:35031
- Neuberger, John W. Use of steepest descent for the systems of conservation equations. 85m:49060
- Rodrigue, Garry A parallel first-order method for parabolic partial differential equations. 85m:65142
- Sabelfeld, K. K. See Dzhetysbaev, E. O., 85i:65006
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- Wysocki, Marian Application of orthogonal collocation to simulation and control of first order hyperbolic systems. 85c:65151
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- Zhumabekov, L. The third boundary value problem for a parabolic system in a rectangular parallelepiped. (Russian) 85k:35109
- Verfürth, R. The contraction number of a multigrid method. (Not in MR)

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- Bratus', A. S. (with Litvin, V. I.) Application of the Bubnov-Galerkin method to the solution of some problems of optimization of elastic structures of variable thickness. (Russian) (Not in MR)
- Litvin, V. I. See Bratus', A. S., (Not in MR)
- Yuan, Yi Rang On numerical analysis of curved elements of elasticity foundation plate. (Chinese. English summary) (Not in MR)

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- Wright, C. J. A survey of some numerical techniques for unbounded elliptic partial differential equations. (See 85h:65006)

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- (Belytschko, Ted) See Computational methods for transient analysis, 85d:73003
- (Birkhoff, Garrett) See Elliptic problem solvers, 85g:65007
- Bulgarelli, U. (with Casulli, V.; Celli, A.; Salsano, G.; Spitaleri, R. M.) ★ Una raccolta di metodi numerici per la modellizzazione matematica. (Italian) [A collection of numerical methods for mathematical modeling] 85c:65155
- Casulli, V. See Bulgarelli, U.; et al., 85c:65155
- Celli, A. See Bulgarelli, U.; et al., 85c:65155
- (Haug, Edward J.) See Computer aided analysis and optimization of mechanical system dynamics, 85i:73001
- (Hughes, Thomas J. R.) See Computational methods for transient analysis, 85d:73003
- Jain, M. K. ★ Numerical solution of differential equations. 85c:85001
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- Karplus, Walter J. See Vemuri, V., 85c:65001
- Rice, John R. Building elliptic problem solvers with ELLPACK. (See 85g:65007)
- Salsano, G. See Bulgarelli, U.; et al., 85c:65155
- (Schoenstadt, Arthur) See Elliptic problem solvers, 85g:65007
- Spitaleri, R. M. See Bulgarelli, U.; et al., 85c:65155
- Vemuri, V. (with Karplus, Walter J.) ★ Digital computer treatment of partial differential equations. 85c:65001
- Computational methods for transient analysis ★ Computational methods for transient analysis. 85d:73003
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- Conference:
- Elliptic problem solvers ★ Elliptic problem solvers. II. 85g:65007
- Elliptic problem solvers ★ Elliptic problem solvers. II. 85g:65007
- Iowa City, Iowa ★ Computer aided analysis and optimization of mechanical system dynamics. 85i:73001
- Monterey, Calif. ★ Elliptic problem solvers. II. 85g:65007
- NATO advanced study institute:
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## 65N05 Derivation of finite difference approximations

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Tai, Heng Ming (with Saeka, R.) Parallel system simulation. 85f:65132

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Tilmonen, T. See Loppalainen, V.; et al., 85f:65131

Van Rosendale, John See Gannon, Dennis, (85g:65007)

Yamamura, Kiyotaka See Oishi, Shin'ichi; et al., 85h:65287

secondary classifications (65W05)

Krishnamurthy, K. V. Fast parallel exact computation of the Moore-Penrose inverse and rank of a matrix. (German and Russian summaries) 85h:65085

Liptak, Elias A. Solving elliptic boundary value problems on parallel processors by approximate inverse matrix semidirect methods based on the multiple explicit Jacobi iteration. 85m:65026

O'Leary, Dianne P. Ordering schemes for parallel processing of certain mesh problems. 85h:65226

Protopov, V. A. An algorithm for the solution of ordinary differential equations for control computers. (Russian) 85i:65090

Rodrigue, Garry (with Wolitzer, Donald) Preconditioning by incomplete block cyclic reduction. 85i:65041

Wolitzer, Donald See Rodrigue, Garry, 85i:65041

## 68-XX COMPUTER SCIENCE (For papers involving machine computations and programs in a specific mathematical area, see section -04 in that area.)

### 68-00 Handbooks, dictionaries, and other reference works

Dijkstra, Edsger W. ★Selected writings on computing: a personal perspective. 85d:68001

(Scholten, C. S.) See Dijkstra, Edsger W., 85d:68001

secondary classifications (68-00)

Duda, Roman The new role of computers in mathematics. (Polish) 85a:00017a

See also Semadeni, Z., 85a:00017b

(Schoop, Wolfgang) See Encyclopaedia: Business and economics, 85a:00015

Semadeni, Z. Remarks on: "The new role of computers in mathematics" [Wiadom. Mat. 24 (1982), no. 1, 47-55] by R. Duda. (Polish) 85a:00017b

Encyclopaedia:

Business and economics ★Lexikon der Wirtschaft. (German) [Encyclopedia for business and economics] 85a:00015

### 68-01 Elementary exposition; textbooks

Brams, G. W. ★Réseaux de Petri: théorie et pratique. Tome 1. (French) [Petri nets: theory and application. Vol. 1] 85d:68002

★Réseaux de Petri: théorie et pratique. Tome 2. (French) [Petri nets: theory and applications. Vol. 2] 85m:68001

Césaroni, G. See Raymond, F. H., 85j:68001a

Goos, Gerhard See Waite, William McCalline, 85f:68001

Horowitz, Ellis (with Sahni, Sartaj) ★Fundamentals of data structures in Pascal. 85e:68001

(Rauit, Jean-Claude) See Brams, G. W., 85d:68002

Raymond, F. H. (with Césaroni, G.) ★Programmation: outils algébriques. (French) [Programming: algebraic tools] 85j:68001a

★Programmation: application de l'algèbre des programmes. (French) [Programming: application of the algebra of programs] 85j:68001b

Sahni, Sartaj See Horowitz, Ellis, 85e:68001

Waite, William McCalline (with Goos, Gerhard) ★Compiler construction. 85f:68001

secondary classifications (68-01)

Dembinski, Piotr See Riedewald, Günter; et al., 85k:68062

Maier, David ★The theory of relational databases. 85f:68020

Maluszyński, Jan See Riedewald, Günter; et al., 85k:68062

Rayward-Smith, V. J. ★A first course in formal language theory. 85k:68049

Riedewald, Günter (with Maluszyński, Jan; Dembinski, Piotr) ★Formale Beschreibung von Programmiersprachen. (German) [Formal description of programming languages] 85k:68062

Schroeder, M. R. ★Number theory in science and communication. 85j:11003

### 68-02 Advanced exposition (research surveys, monographs, etc.)

secondary classifications (68-02)

van Emde Boas, P. Machine models, computational complexity and number theory. 85d:68028

Jonkers, H. B. M. ★Abstraction, specification and implementation techniques. 85j:68079

### 68-03 Historical (must also be assigned at least one classification number from Section 01)

secondary classifications (68-03)

Ascher, Marcia The logical-numerical system of Inca quipus. 85b:01003

(Babbage, Charles) See Mosconi, Jean, 85a:01040

Beard, M. (with Pearcey, T.) The genesis of an early stored-program computer: CSIRAC. (Not in MR)

(Bloom, Stephen L.) See Elgot, Calvin C., 85a:01077

Churchhouse, R. F. The past, present and future of computers and computer science. (Not in MR)

(Eilenberg, Samuel) See Elgot, Calvin C., 85a:01077

Elgot, Calvin C. ★Selected papers. 85a:01077

Franken, Ole Immanuel ★Mr. Babbage's secret. 85k:01022

Glushkov, V. M. Theoretical cybernetics. (Russian) (See 85g:01004)

(Goldstone, H. H.) See Franken, Ole Immanuel, 85k:01022

Huskey, Harry D. From ACE to the G-15. (Not in MR)

Mainzer, Klaus Wissenschaftsgeschichte und Philosophie der Mathematik und Informatik. [History of science, and philosophy of mathematics and computer science] 85e:01038

(Mauchly, John) See Mauchly, Kathleen R., 85b:01033

Mauchly, Kathleen R. John Mauchly's early years. 85b:01033

Mosconi, Jean Charles Babbage: vers une théorie du calcul mécanique. (English summary) [Charles Babbage: toward a theory of mechanical calculation] 85a:01040

Orchard-Hays, William History of mathematical programming systems. 85m:01049

Pearcey, T. See Beard, M., (Not in MR)

(Scott, Dana S.) See Elgot, Calvin C., 85a:01077

Biography:

Mauchly, John See Mauchly, Kathleen R., 85b:01033

### 68-06 Proceedings, conferences, etc.

(Atiyah, M. F.) See Mathematical logic and programming languages, 85k:68005

(Ausiello, G.) See CAAP, 85d:68006 and Algorithm design for computer system design, 85k:68002

(Bibel, Wolfgang) See Artificial intelligence, 85d:68004

(Björner, Dines) See Formal description of programming concepts, 85m:68002

(Bledsoe, W. W.) See Automated theorem proving, 85d:68005

(Börger, Egon) See Logic and machines: decision problems and complexity, 85k:68004

(Dörfler, Willibald) See Interactions between information science and mathematics, 85g:68004

(Farmer, Dooyne) See Cellular automata, 85g:68003

(Fontet, M.) See STACS, 85i:68002

(Fu, King Sun) See Pattern recognition theory and applications, 85k:68006

(Hasenjaeger, G.) See Logic and machines: decision problems and complexity, 85k:68004

(Hoare, C. A. R.) See Mathematical logic and programming languages, 85k:68005

(Kahn, G.) See Semantics of data types, 85m:68003

(Karpinski, Marek) See Foundations of computation theory, 85e:68003

(Kittler, J.) See Pattern recognition theory and applications, 85k:68006

(Loveland, D. W.) See Automated theorem proving, 85d:68005 and Conference: Automated deduction, 85e:68002

(Lucertini, Mario) See Algorithm design for computer system design, 85k:68002

(Lupanov, O. B.) See Cybernetics collection. New series, 85d:68007

(MacQueen, D. B.) See Semantics of data types, 85m:68003

(Mehlhorn, K.) See STACS, 85i:68002

(Neumann, Bernd) See Workshop: GWA1, 85g:68007

(Pagnoni, Anastasia) See Applications and theory of Petri nets, 85d:68003

(Pau, L.-F.) See Pattern recognition theory and applications, 85k:68006

(Paul, Manfred) See Symposium: Programming, 85k:68008

(Pearl, Judea) See Search and heuristics, 85f:68002

(Plotkin, G.) See Semantics of data types, 85m:68003

(Protasi, Marco) See CAAP, 85d:68006

(Robinet, B.) See Symposium: Programming, 85k:68008

(Rödding, D.) See Logic and machines: decision problems and complexity, 85k:68004

(Rosenberg, Graegors) See Applications and theory of Petri nets, 85d:68003

(Schauer, Helmut) See Interactions between information science and mathematics, 85g:68004

(Serafini, P.) See Algorithm design for computer system design, 85k:68002

(Shepherdson, J. C.) See Mathematical logic and programming languages, 85k:68005

(Shostak, Robert E.) See Conference: Automated deduction, 85k:68003

(Siekman, Jörg H.) See Artificial intelligence, 85d:68004

(Toffoli, Tommaso) See Cellular automata, 85g:68003

(Wahlster, Wolfgang) See Workshop: GWA1, 85d:68009

(Wolfram, Stephen) See Cellular automata, 85g:68003

(Yovita, Marshall C.) See Advances in computers, 85g:68001

Advances in computers ★Advances in computers. Vol. 23. 85g:68001

Algebraic and logical foundations of programming ★Algebraische und logische Grundlagen der Programmierung. (German) [Algebraic and logical foundations of programming] 85k:68001

**Algebraische und logische Grundlagen der Programmierung** ★ Algebraic and logical foundations of the programming. (German) [Algebraic and logical foundations of programming] 85k:68001

**Algorithm design for computer system design** ★ Algorithm design for computer system design. 85k:68002

**Applications and theory of Petri nets** ★ Applications and theory of Petri nets. 85d:68003

**Artificial intelligence** ★ Künstliche Intelligenz. (German) [Artificial intelligence] 85d:68004

**Autbild** ★ Autbild '83. (German) 85j:68002

**Automated theorem proving** ★ Automated theorem proving. 85d:68005

**Bad Honnef** ★ GWAI-82. 85d:68009

**Bangalore** ★ Foundations of software technology and theoretical computer science. 85d:68006

**Basic theory of computer science** ★ Basic theory of computer science. 85g:68002

**Berlin** ★ Arbeitseminar: Diskrete Mathematik und ihre Anwendung in der mathematischen Kybernetik. (Russian) [Work seminar on discrete mathematics and its application in mathematical cybernetics] 85k:68009

**Borgholm** ★ Foundations of computation theory. 85e:68003

**CAAP** ★ CAAP'83. 85d:68006

**Cellular automata** ★ Cellular automata. 85g:68003

**Chicago, Ill.** ★ 23rd annual symposium on foundations of computer science. 85k:68007

**Colloquium:**

**Trees in algebra and programming** ★ CAAP'83. 85d:68006

**Conference:**

**Automated deduction** ★ 6th conference on automated deduction. 85e:68002

**Foundations of computation theory** ★ Foundations of computation theory. 85e:68003

**Foundations of software technology and theoretical computer science** ★ Foundations of software technology and theoretical computer science. 85d:68006

**Cybernetics collection. New series** ★ Кибернетический сборник. Новая серия. Вып. 20. (Russian) [Cybernetics collection. New series. No. 20] 85d:68007

**Dassel** ★ GWAI-83. 85g:68007

**Denver, Colo.** ★ Automated theorem proving. 85d:68005

**Diedrichshagen** ★ Symposium on mathematical foundations of computer science. 85f:68003

**Formal description of programming concepts** ★ Formal description of programming concepts. II. 85m:68002

**Foundations of computation theory** ★ Foundations of computation theory. 85e:68003

**Foundations of software technology and theoretical computer science** ★ Foundations of software technology and theoretical computer science. 85d:68006

**Garmisch-Partenkirchen** ★ Formal description of programming concepts. II. 85m:68002

**IFIP Conference:**

**Formal description of programming concepts** ★ Formal description of programming concepts. II. 85m:68002

**Interactions between information science and mathematics** ★ Wechselwirkungen zwischen Informatik und Mathematik. (German) [Interactions between information science and mathematics] 85g:68004

**Jena** ★ Autbild '83. (German) 85j:68002

**Künstliche Intelligenz** ★ Künstliche Intelligenz. (German) [Artificial intelligence] 85d:68004

**Lambda calculus and computer science theory** ★ Lambda calculus and computer science theory. 85g:68005

**L'Aquila** ★ CAAP'83. 85d:68006

**Logic and machines: decision problems and complexity** ★ Logic and machines: decision problems and complexity. 85k:68004

**Los Alamos, N. M.** ★ Cellular automata. 85g:68003

**Mathematical logic and programming languages** ★ Mathematical logic and programming languages. 85k:68005

**Mathematical models in software science and engineering** ★ Mathematical models in software science and engineering. 85g:68006

**Meeting:**

**American Mathematical Society** ★ Automated theorem proving. 85d:68005

**Automated picture processing** ★ Autbild '83. (German) 85j:68002

**Napa, Calif.** ★ 7th international conference on automated deduction. 85k:68003

**NATO advanced study institute:**

**Pattern recognition theory and applications** ★ Pattern recognition theory and applications. 85k:68006

**New York** ★ 6th conference on automated deduction. 85e:68002

**Oxford** ★ Pattern recognition theory and applications. 85k:68006

**Paris** ★ STACS 84. 85i:68002

**Pattern recognition theory and applications** ★ Pattern recognition theory and applications. 85k:68006

**Research on the organization and meaning of information** ★ Research on the organization and meaning of information. (Japanese) 85i:68001

**Search and heuristics** ★ Search and heuristics. 85f:68002

**Semantics of data types** ★ Semantics of data types. 85m:68003

**Session:**

**Automated theorem proving** ★ Automated theorem proving. 85d:68005

**Spring school:**

**Artificial intelligence** ★ Künstliche Intelligenz. (German) [Artificial intelligence] 85d:68004

**STACS** ★ STACS 84. 85i:68002

**Symposium:**

**Basic theory of computer science** ★ Basic theory of computer science. 85g:68002

**Foundations of computer science** ★ 23rd annual symposium on foundations of computer science. 85k:68007

**Lambda calculus and computer science theory** ★ Lambda calculus and computer science theory. 85g:68005

**Mathematical foundations of computer science** ★ Symposium on mathematical foundations of computer science. 85f:68003

**Mathematical models in software science and engineering** ★ Mathematical models in software science and engineering. 85g:68006

**Programming** ★ International symposium on programming. 85k:68008

**Recursive combinatorics** ★ Logic and machines: decision problems and complexity. 85k:68004

**Research on the organization and meaning of information** ★ Research on the organization and meaning of information. (Japanese) 85i:68001

**Semantics of data types** ★ Semantics of data types. 85m:68003

**Theoretical aspects of computer science** ★ STACS 84. 85i:68002

**Telensdorf** ★ Künstliche Intelligenz. (German) [Artificial intelligence] 85d:68004

**Toulouse** ★ International symposium on programming. 85k:68008

**Valbonne** ★ Semantics of data types. 85m:68003

**Varenn** ★ Applications and theory of Petri nets. 85d:68003

**Wechselwirkungen zwischen Informatik und Mathematik** ★ Wechselwirkungen zwischen Informatik und Mathematik. (German) [Interactions between information science and mathematics] 85g:68004

**Westfalen** ★ Logic and machines: decision problems and complexity. 85k:68004

**Workshop:**

**Applications and theory of Petri nets** ★ Applications and theory of Petri nets. 85d:68003

**Cellular automata** ★ Cellular automata. 85g:68003

**Discrete mathematics and its application in mathematical cybernetics** ★ Arbeitseminar: Diskrete Mathematik und ihre Anwendung in der mathematischen Kybernetik. (Russian) [Work seminar on discrete mathematics and its application in mathematical cybernetics] 85k:68009

**German, artificial intelligence** ★ GWAI-82. 85d:68009

**GWAI** ★ GWAI-82. 85d:68009

**secondary classifications (68-06)**

(Atkinson, M. D.) See Computational group theory. 85g:20001

(Bagar, Tamar) See Conference: Allerton, communication, control, and computing. 85g:93001

(Börger, Egon) See Computation and proof theory. 85k:03002b

(Brown, Donna J.) See Conference: Allerton, communication, control, and computing. 85g:93001

(Disney, Ralph L.) See Applied probability—computer science: the interface. 85h:60001a and 85h:60001b

(Ershov, A. P.) See Algorithms in modern mathematics and their applications. 85h:03004a and 85h:03004b

(Fitch, John) See EUROSAM. 85k:00009

(Frege, Gottlob) See Conference: Frege. 85m:03006

(Heiner, Karl W.) See Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:62005

(Knuth, D. E.) See Algorithms in modern mathematics and their applications. 85h:03004a and 85h:03004b

(Martino, Antonio A.) See Deontic logic, computational linguistics and legal information systems. 85g:03003b

(Oberschelp, Walter) See Computation and proof theory. 85k:03002b

(Ott, Teunis J.) See Applied probability—computer science: the interface. 85h:60001a and 85h:60001b

(Poor, H. V.) See Conference: Allerton, communication, control, and computing. 85g:93001

(Popkov, V. K.) See Methods and programs for solving optimization problems on graphs and networks. 85f:90039 and 85f:90040

(Richter, M. M.) See Computation and proof theory. 85k:03002b

(Sacher, R. S.) See Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:62005

(Schinsel, B.) See Computation and proof theory. 85k:03002b

(Shabanov-Kushnarenko, Yu. P.) See Problems of bionics. 85d:05002

(Thomas, Wolfgang) See Computation and proof theory. 85k:03002b

(Trypkin, Ya. Z.) See Control in complex nonlinear systems. 85g:93003

(Wechsung, Gerd) See Conference: Frege. 85m:03006

(Wilkinson, John W.) See Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:62005

**Aachen** ★ Computation and proof theory. 85k:03002b

**Algorithms in modern mathematics and their applications** ★ Алгоритмы в современной математике и ее приложениях. Часть I. (Russian) [Algorithms in modern mathematics and their applications. Part I] 85h:03004a

**All-union conference:**

**Methods and programs for solving optimization problems on graphs and networks** ★ Методы и программы решения оптимизационных задач на графах и сетях. Часть I. (Russian) [Methods and programs for solving optimization problems on graphs and networks. Part I] 85f:90039

**Applied probability—computer science: the interface** ★ Applied probability—computer science: the interface. Vol. I. 85h:60001a

**Boca Raton, Fla.** ★ Applied probability—computer science: the interface. Vol. I. 85h:60001a

**Cambridge** ★ EUROSAM 84. 85k:00009

**Colloquium:**

**Logic** ★ Computation and proof theory. 85k:03002b

**Computation and proof theory** ★ Computation and proof theory. 85k:03002b

**Computational group theory** ★ Computational group theory. 85g:20001

**Computer algebra and its applications to mathematical studies** ★ Computer algebra and its applications to mathematical studies. 85g:65006

**Computer science and statistics: proceedings of the 14th symposium on the interface** ★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:62005



## Conference:

Allerton, communication, control, and computing ★ Twenty-first annual Allerton conference on communication, control, and computing. 85g:93001

Frege ★ Frege conference, 1984. 85m:63006

Logic, informatics, law ★ Deontic logic, computational linguistics and legal information systems. Vol. II. 85g:93003b

West Coast, combinatorics, graph theory, and computing ★ Proceedings of the second West Coast conference on combinatorics, graph theory, and computing. 85c:66001

Control in complex nonlinear systems ★ Управление в сложных нелинейных системах. (Russian) [Control in complex nonlinear systems] 85g:93003

Deontic logic, computational linguistics and legal information systems ★ Deontic logic, computational linguistics and legal information systems. Vol. II. 85g:93003b

Durham ★ Computational group theory. 85g:20001

Eugene, Ore. ★ Proceedings of the second West Coast conference on combinatorics, graph theory, and computing. 85c:66001

EUROSAM ★ EUROSAM 84. 85k:00009

Florence ★ Deontic logic, computational linguistics and legal information systems. Vol. II. 85g:93003b

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Applied probability—computer science: the interface ★ Applied probability—computer science: the interface. Vol. I. 85h:60001a

Methods and programs for solving optimization problems on graphs and networks ★ Методы и программы решения оптимизационных задач на графах и сетях. Часть I. (Russian) [Methods and programs for solving optimization problems on graphs and networks. Part I] 85f:90039

Monticello, Ill. ★ Twenty-first annual Allerton conference on communication, control, and computing. 85g:93001

Problems of bionics ★ Проблемы бионики. Вып. 31. (Russian) [Problems of bionics. No. 31] 85d:66002

## Proceedings:

West Coast conference on combinatorics, graph theory, and computing ★ Proceedings of the second West Coast conference on combinatorics, graph theory, and computing. 85c:66001

Queueing theory and related topics ★ Queueing theory and related topics. (Japanese) 85h:60003

Schwerin ★ Frege conference, 1984. 85m:63006

## Symposium:

Algorithms in modern mathematics and their applications ★ Алгоритмы в современной математике и ее приложениях. Часть I. (Russian) [Algorithms in modern mathematics and their applications. Part I] 85h:63004a

Computational group theory ★ Computational group theory. 85g:20001

Computer algebra and its applications to mathematical studies ★ Computer algebra and its applications to mathematical studies. 85g:65006

EUROSAM, symbolic and algebraic computation ★ EUROSAM 84. 85k:00009

Interface ★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:62005

Queueing theory and related topics ★ Queueing theory and related topics. (Japanese) 85h:60003

Troy, N.Y. ★ Computer science and statistics: proceedings of the 14th symposium on the interface. 85a:62005

Ulan Ude ★ Методы и программы решения оптимизационных задач на графах и сетях. Часть I. (Russian) [Methods and programs for solving optimization problems on graphs and networks. Part I] 85f:90039

Urgench ★ Алгоритмы в современной математике и ее приложениях. Часть I. (Russian) [Algorithms in modern mathematics and their applications. Part I] 85h:63004a

## 68Mxx Computers and computer systems

Ioffe, L. Sh. See Sadovskii, L. E.; et al., (Not in MR)

Kleiner, G. B. See Sadovskii, L. E.; et al., (Not in MR)

Sadovskii, L. E. (with Kleiner, G. B.; Ioffe, L. Sh.) Discrete linear models of organizational systems, and computer networks. (Russian) (Not in MR)

Tavlatashvili, V. D. On the performance of a computer system with automatic correction and accumulation of stable faults. (Russian. English and Georgian summaries) (Not in MR)

## 68M05 General

Akushkii, I. Ya. (with Burtsev, V. M.) Some properties of the core characteristic of nonpositional systems. (Russian) 85a:60001

(with Burtsev, V. M.) Nonpositional systems of superhigh range. (Russian) (Not in MR)

Artem'ev, M. Yu. See Mamseev, I. A., (Not in MR)

Ausiello, G. (with Bertolazzi, P.) Parallel computer models: an introduction. (See 85k:68002)

Avraki, D. (with Romanski, R.) Formal analysis of degradation in multimicroprocessor systems with a tree structure. (Bulgarian. English and Russian summaries) (Not in MR)

Bertolazzi, P. See Ausiello, G., (85k:68002)

Burtsev, V. M. See Akushkii, I. Ya., 85a:60001 and (Not in MR)

Froment, Antoine Error free computation: a direct method to convert finite-segment p-adic numbers into rational numbers. 85b:68001

Lichnewsky, Alain (with Lions, Jacques-Louis) Super-ordinateurs: évolutions et tendances. [Supercomputers: evolution and tendencies] (Not in MR)

Lions, Jacques-Louis See Lichnewsky, Alain, (Not in MR)

Mamseev, I. A. (with Artem'ev, M. Yu.) Algorithmically complete set of system operations of uniform computing systems (UCS) with common main channel. (Not in MR)

Peri, Yehoshua (with Snir, Marc) Circuit partitioning with size and connection constraints. 85a:68002

Romanski, R. See Avraki, D., (Not in MR)

Snir, Marc See Peri, Yehoshua, 85a:68002

secondary classifications (68M05)

Asai, Hitohisa A consideration of a practical implementation for a new convergence division. 85d:65077

Davio, Marc (with Deschamps, Jean-Pierre; Thayse, André) ★ Digital systems. 85j:94001

Deschamps, Jean-Pierre See Davio, Marc; et al., 85j:94001

Krishnamurthy, E. V. (with Murthy, V. K.) Fast iterative division of p-adic numbers. 85a:11004

Murthy, V. K. See Krishnamurthy, E. V., 85a:11004

Thayse, André See Davio, Marc; et al., 85j:94001

## 68M10 Computer networks

Afshari, F. V. See Bruell, S. C.; et al., (Not in MR)

Ahlswede, R. (with Koschnick, K. U.) Note on an extremal problem arising for unreliable networks in parallel computing. 85j:68003

Balbo, G. See Bruell, S. C.; et al., (Not in MR)

Balina, E. I. See Brodets'kii, G. L., 85a:68003

Bertsekas, Dimitri P. See Gafni, Eli M., (Not in MR)

Brodets'kii, G. L. (with Balina, E. I.) The use of time redundancy in stepwise running of problems on different computers of a complex. (Russian. English summary) 85a:68003

Bronshteyn, Oscar (with Gertsbak, Ilya B.) An open exponential queueing network with limited waiting spaces and losses: a method of approximate analysis. 85k:68010

Bruell, S. C. (with Balbo, G.; Afshari, F. V.) Mean value analysis of mixed, multiple class BCMP networks with load dependent service stations. (Not in MR)

Cheston, Grant A. (with Hedetniemi, Stephen) Polling in tree networks. 85f:68004

Cioffi, G. (with Lucertini, Mario) An evaluation model for interconnection networks of large distributed processing systems. (See 85g:93001)

Colbourn, Charles J. See Neufeld, Eric M., 85f:68005

Coyle, Edward J. (with Lazar, Aurel A.) Optimal flow control in a CSMA/CD environment. (See 85g:93001)

Dolev, Danny (with Reischuk, Ruediger; Strong, H. Raymond) "Eventual" is earlier than "immediate". (See 85k:68007)

(with Strong, H. Raymond) Authenticated algorithms for Byzantine agreement. 85a:68004

Dou, C. See Yum, Takshing P., (Not in MR)

Fábrega, J. See Fiol, M. A.; et al., 85c:68001

Fiol, M. A. (with Yebra, J. L. A.; Fábrega, J.) Sequence graphs and interconnection networks. 85c:68001

Gafni, Eli M. (with Bertsekas, Dimitri P.) Dynamic control of session input rates in communication networks. (Not in MR)

Gertsbak, Ilya B. See Bronshteyn, Oscar, 85k:68010

Gries, David See Schneider, Fred B.; et al., 85e:68004

Hedetniemi, Stephen See Cheston, Grant A., 85f:68004

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- Luccio, F. See Bomuccelli, M. A.; et al., (85d:68006)
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- Letichevskii, A. A. (with Godlevskii, A. B.; Krivoi, S. L.) An efficient algorithm for constructing a basis of a subgroup of a free group. 85d:20001
- Mandelbaum, David M. Reducing the number of operations in certain finite-field transforms. 85k:94044
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- Pkhakadze, Sh. S. Some problems of the theory of abbreviating symbols. (Russian. English and Georgian summaries) 85f:03009
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- Brody, E. J. A topological formulation of linguistic typology. 85a:68087
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- Friedman, Linda Weiser (with Friedman, Hershey H.) Statistical considerations in computer simulation: the state of the art. (Not in MR)
- Glynn, Peter W. (with Iglehart, Donald L.) Simulation output analysis for general state space Markov chains. 85i:62023
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- Pearson, R. B. An algorithm for pseudorandom number generation suitable for large scale integration. 85a:65014

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## 68U30 Other applications

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- Joseph, Deborah See Hopcroft, John; et al. (85k:68007)
- Whitesides, Sue See Hopcroft, John; et al. (85k:68007)

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- Hopcroft, John Robotics—a new direction in theoretical computer science. (See 85d:68006)
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## 70-01 Elementary exposition; textbooks

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- Gough, W. (with Richards, J. P. G.; Williams, R. P.) ★ Vibrations and waves. 85a:70001
- Rasband, S. Neil ★ Dynamics. 85a:70002
- Richards, J. P. G. See Gough, W.; et al. 85a:70001
- Tatarinov, Ya. V. ★ Лекции по классической динамике. (Russian) [Lectures in classical dynamics] 85m:70001
- Williams, R. P. See Gough, W.; et al. 85a:70001

## secondary classifications (70-01)

- (Arkhangelskii, Yu. A.) See Routh, Edward John. 85h:70003a and 85h:70003b
- (Demin, V. G.) See Routh, Edward John. 85h:70003a and 85h:70003b
- Gallullin, A. S. ★ Inverse problems of dynamics. 85i:70007
- Plakhov, Yu. V. ★ Применение теории возмущений в космической геодезии. (Russian) [Application of perturbation theory in cosmic geodesy] 85b:70028
- Routh, Edward John ★ Динамика системы твердых тел. Том I. (Russian) [Dynamics of a system of rigid bodies. Vol. I] 85h:70003a
- ★ Динамика системы твердых тел. Том II. (Russian) [Dynamics of a system of rigid bodies. Vol. II] 85h:70003b
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- (Sergeev, V. A.) See Routh, Edward John. 85h:70003a and 85h:70003b
- Steklov, V. A. ★ Основные задачи математической физики. (Russian) [Fundamental problems in mathematical physics] 85h:01033
- (Stepanov, S. Ya.) See Routh, Edward John. 85h:70003a and 85h:70003b
- (Vladimirov, V. S.) See Steklov, V. A. 85h:01033
- (Wadhwa, Ram S.) See Gallullin, A. S. 85i:70007

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- Biography:
- Steklov, V. A. See Steklov, V. A. 85h:01033
- Fundamental problems in mathematical physics See Steklov, V. A. 85h:01033

## 70-02 Advanced exposition (research surveys, monographs, etc.)

## secondary classifications (70-02)

- (Caponov-Grekhov, A. V.) See Hydrodynamic instabilities and the transition to turbulence. 85f:76064
- (Golub, J. P.) See Hydrodynamic instabilities and the transition to turbulence. 85f:76064
- Grigor'yan, A. T. (with Kirsanov, V. S.) Development of certain trends in mechanics in the U.S.S.R. 85i:01001
- Kirsanov, V. S. See Grigor'yan, A. T. 85i:01001
- Lichtenberg, Allan J. (with Lieberman, Michael A.) ★ Regular and stochastic motion. 85g:58038
- Lieberman, Michael A. See Lichtenberg, Allan J. 85g:58038
- (Pikovskii, A. S.) See Hydrodynamic instabilities and the transition to turbulence. 85f:76064
- (Rabinovich, M. I.) See Hydrodynamic instabilities and the transition to turbulence. 85f:76064
- (Swinney, Harry L.) See Hydrodynamic instabilities and the transition to turbulence. 85f:76064

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70-03 Historical (must also be assigned at least one classification number from Section 01)

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Andjelić, Tatomir P. Origin of the fundamental equations of rocket dynamics. (Serbo-Croatian. German summary) 85k:01019

Aoki, Shinko ★ Кинешита, Хироси, 85i:70017

Artobolevskii, I. I. (with Bogolyubov, Aleksei Nikolaevich) Theory of mechanisms and machines. (Russian) (See 85g:01004)

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(Galilei, Galileo) See Chalmers, Alan, 85b:01014

Hill, Robert Nyden The origins of predictive relativistic mechanics. 85f:01021

Karavaev, Yu. V. E. A. Bolotov's treatment of Gauss's principle of least constraint. (Russian. English summary) 85e:01026

Khokhlov, A. I. See Mosalevskaya, G. V., 85m:01047

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Konopleva, N. P. Inertial motion and axiomatics of physical theories. (Russian) 85b:01034

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Mosalevskaya, G. V. (with Khokhlov, A. I.) The current state of the problem of construction of exact solutions of the equations of motion of a gyroscope in the Cardan suspension. (Russian) 85m:01047

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Vaslin, V. P. Galileo's relativity principle. (Russian) 85k:01016

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Proceedings:

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70-08 Computational methods

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Ling, Fu Hua A numerical treatment of the periodic solutions of nonlinear vibration systems. 85d:70001

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## 70A05 Axiomatics, foundations

- Bressan, Alberto (with Montanaro, A.) Axiomatic foundations of the kinematics common to classical physics and special relativity. (Italian summary) 85g:70004
- Chobanov, Georgi S. (with Chobanov, Ivan) Affine and rigid bodies in Hermitean spaces. (Bulgarian summary) 85g:70006
- (with Chobanov, Ivan) On the instantaneous angular velocity. (Bulgarian summary) 85g:70007
- Chobanov, Ivan See Khristova, Ivanka; et al., 85g:70005; Chobanov, Georgi S., 85g:70006 and 85g:70007
- Khristova, Ivanka (with Stoyanova, R. S.; Chobanov, Ivan) Introduction to an algebraic theory of arrows. I. (Bulgarian summary) 85g:70008
- Montanaro, A. See Bressan, Alberto, 85g:70004
- Stoyanova, R. S. See Khristova, Ivanka; et al., 85g:70005
- Wimmel, H. K. Energy conserving nonrelativistic guiding center mechanics and the Galilean principle of relativity. 85a:70004

## secondary classifications (70A05)

- Aerts, D. Classical theories and nonclassical theories as special cases of a more general theory. 85j:81001
- Cardin, Franco A generalized theory of classical mechanics for the two-body problem. 85c:70005
- Kulakov, Yu. I. On the theory of physical structures. (Russian. English summary) 85c:00018

## 70Bxx Kinematics [See also 53A17.]

- Beggs, Joseph Stiles ★ Kinematics. 85a:70005

## 70B05 Kinematics of a particle

## secondary classifications (70B05)

- Betounes, David E. The kinematical aspect of the fundamental theorem of calculus. 85f:26011

## 70B10 Kinematics of a rigid body

- Kapitanova, M. Kinematic consideration of the motion of a triaxial ellipsoid on a sphere. (Bulgarian. French and Russian summaries) 85c:70001

## secondary classifications (70B10)

- Chobanov, Georgi S. (with Chobanov, Ivan) Affine and rigid bodies in Hermitean spaces. (Bulgarian summary) 85g:70006
- (with Chobanov, Ivan) On the instantaneous angular velocity. (Bulgarian summary) 85g:70007
- Chobanov, Ivan See Chobanov, Georgi S., 85g:70006 and 85g:70007
- Meshecheryakov, M. V. A characteristic property of the tensor of inertia of a multidimensional rigid body. (Russian) 85h:58000

## 70B15 Mechanisms and linkages, robots

- Alferov, G. V. (with Kulakov, F. M.; Neoksesariiskii, V. N.) ★ Кинематические и динамические модели исполнительных систем робота. (Russian) [Kinematic and dynamic models of the manipulative system of a robot] 85i:70001
- Ausin'sh, Ya. P. An implicit algorithm for modeling on a digital computer the dynamics of three-dimensional mechanisms with variable structure. (Russian) 85f:70002
- Kulakov, F. M. See Alferov, G. V.; et al., 85i:70001
- Lin, Jian The application of motion group analysis in the theory of conjugation. (Chinese. English summary) 85a:70006
- Luck, Kurt (with Modler, Karl-Heinz) Die zentrische räumliche Kurbelschwinge. [The centered spatial sliding block drive] 85b:70004
- Modler, Karl-Heinz See Luck, Kurt, 85b:70004
- Neoksesariiskii, V. N. See Alferov, G. V.; et al., 85i:70001
- Tartakovskii, I. I. Unresolvable statically determinate trusses and mechanism buildup groups. 85i:70002
- Tay, Tiong Seng Review: rigidity problems in bar-and-joint frameworks and linkages of rigid bodies. 85c:70002

## secondary classifications (70B15)

- Hopcroft, John (with Joseph, Deborah; Whitesides, Sue) Movement problems for 2-dimensional linkages. 85j:68049
- Joseph, Deborah See Hopcroft, John; et al., 85j:68049
- Pipkin, A. C. Equilibrium of Tchebychev nets. 85h:53012
- Sabl'tov, I. Kh. Description of bendings of degenerate suspensions. (Russian) 85e:52010
- Sugihara, Kōichi On some problems in the design of plane skeletal structures. 85d:05077
- Tay, Tiong Seng Rigidity of multigraphs. I. Linking rigid bodies in  $n$ -space. 85i:05205
- Tertychnyi, V. Ya. The inverse method of dynamic perturbations in the problem of locomotion synthesis. (Russian. English summary) 85f:70050
- Whitesides, Sue See Hopcroft, John; et al., 85j:68049

## 70Cxx Statics

## 70C05 Forces, fields

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- Recki, András Applications of combinatorics to statics—a survey. (See 85d:00027)

## 70Dxx Dynamics of a particle [See also 70Hxx.]

## 70D05 Newtonian dynamics

- Abdelkader, Mostafa A. A damped simple pendulum of constant amplitude. 85a:70007
- Bakhan'kov, A. A. (with Ryabushko, A. P.; Yudin, S. G.) Stability of motions in an infinite domain in Newton's gravitational theory. (Russian. English summary) 85g:70008
- Bowman, F. Central motion under an attractive force varying inversely as the fourth power of the distance. 85a:70008
- Efimov, G. B. See Laricheva, V. V., 85h:70001
- Laricheva, V. V. (with Efimov, G. B.) Asymptotic behavior of asymmetric oscillations of a pendulum and difference of types of solutions of equations for acceleration of a low thrust point in a central gravitational field. (Russian) 85h:70001
- Liu, Xian Zhi Using tangential method to detect the singular points and to discriminate the stability condition of a movable mass point on any guide curve rotating about a vertical axis without friction. 85b:70005
- Mikić, Dušan See Popović, Dejan, 85f:70003
- Popović, Dejan (with Mikić, Dušan) About the dynamical correlation of several families of integral trajectories. 85f:70003
- Ryabushko, A. P. See Bakhan'kov, A. A.; et al., 85g:70008
- Tudose, C. A method for determining accelerations from the differential equation of a dynamical system. (Romanian. English summary) 85a:70009
- Yudin, S. G. See Bakhan'kov, A. A.; et al., 85g:70008

## secondary classifications (70D05)

- Cerveró, J. M. (with Villarroel, Javier) SL(3, R) realisations and the damped harmonic oscillator. 85g:81070
- Kanatan, Ken-ichi The accuracy and the preservation property of the discrete mechanics. 85f:70001
- Lee, Robert A. Quantum mechanics as a multidimensional Ermakov theory. I. Time independent systems. 85d:81020
- Machta, Jonathan Power law decay of correlations in a billiard problem. 85e:70010
- Villarroel, Javier See Cerveró, J. M., 85g:81070

## 70D10 Lagrangian dynamics

## secondary classifications (70D10)

- Rund, Hanno Invariance identities associated with finite gauge transformations and the uniqueness of the equations of motion of a particle in a classical gauge field. 85d:70013
- Xanthopoulos, Basilis C. Integrals of motion and analytic functions. 85j:58082

## 70D99 None of the above, but in this section

- Carriero, Michele (with Leaci, Antonio; Pascali, Eduardo) Convergence for the first-integral equation associated with the one-dimensional elastic bounce problem. (Italian. English summary) 85h:70002
- Leaci, Antonio See Carriero, Michele; et al., 85h:70002
- Mijatović, M. (with Veljanovski, B.) Inverse Lie and Lie-admissible approaches to systems with velocity-dependent forces. 85d:70002
- Pascali, Eduardo See Carriero, Michele; et al., 85h:70002
- Терост, Иоиф Sur certains mouvements centraux plans dans un milieu résistant. [On certain plane central motions in a resisting medium] 85e:70001
- Veljanovski, B. See Mijatović, M., 85d:70002

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- Reid, James L. (with Strobel, G. L.) The nonlinear superposition theorem of Lie and Abel's differential equations. 85c:34016
- Strobel, G. L. See Reid, James L., 85c:34016
- Vetier, A. Sinai billiard in potential field (absolute continuity). (See 85g:60005)
- Weitzner, Harold Motion of a charged particle in slowly varying electromagnetic fields. 85b:82049
- Wimmel, H. K. Energy conserving nonrelativistic guiding center mechanics and the Galilean principle of relativity. 85a:70004

## 70Exx Dynamics of rigid bodies

- (Arkhangel'skii, Yu. A.) See Routh, Edward John, 85h:70003a and 85h:70003b
- (Demin, V. G.) See Routh, Edward John, 85h:70003a and 85h:70003b
- Routh, Edward John ★ Динамика систем твердых тел. Том I. (Russian) [Dynamics of a system of rigid bodies. Vol. I] 85h:70003a
- ★ Динамика систем твердых тел. Том II. (Russian) [Dynamics of a system of rigid bodies. Vol. II] 85h:70003b
- (Rubanovskii, V. N.) See Routh, Edward John, 85h:70003a and 85h:70003b
- (Sergeev, V. S.) See Routh, Edward John, 85h:70003a and 85h:70003b
- (Stepanov, S. Ya.) See Routh, Edward John, 85h:70003a and 85h:70003b
- Zubov, V. I. ★ Аналитическая динамика систем тел. (Russian) [Analytic dynamics of a system of bodies] 85i:70003

## 70E05 Motion of the gyroscope

- Cheshankov, B. I. (with Teeranyan, M.) On a problem of Ishlinskii. (Bulgarian. English and Russian summaries) 85c:70003
- Dokshovich, A. I. A class of motions of the Kovalevskaya top. (Russian) 85e:70002
- Messori, Bruno Slow motions and gyroscopic phenomena. (Italian) 85f:70004
- Rumyantsev, V. V. On stability problem of a top. (Not in MR)
- Starzhinskii, V. M. Motion of a Kovalevskaya gyroscope in two singular cases. (Russian) 85g:70009
- An exceptional case of motion of the Kovalevskaya gyroscope. 85a:70010



- Temirbaeva, M. K. Existence of periodic motions near resonances for a heavy gyrost at with one fixed point. (Russian. Tajiki summary) 85i:70004  
 Tseryanov, M. See Cheshankov, B. I., 85c:70003

## secondary classifications (70E05)

- Dorizzi, B. See Ramani, A.; et al., 85d:58036  
 Enofakili, V. Z. On the two-gap Lamé potentials and elliptic solutions of the Kovalevskaja problem connected with them. 85k:35200  
 Grammaticos, B. See Ramani, A.; et al., 85d:58036  
 Komarov, I. V. (with Zalipae, V. V.) The Goryachev-Chaplygin gyrost at in quantum mechanics. 85j:81027  
 Ramani, A. (with Grammaticos, B.; Dorizzi, B.) On the quantization of the Kovalevskaya top. 85d:58036  
 Sklyanin, E. K. The Goryachev-Chaplygin top and the method of the inverse scattering problem. (Russian) 85h:81074  
 Zalipae, V. V. See Komarov, I. V., 85j:81027  
 Ziglin, S. L. Bifurcation of solutions and the nonexistence of first integrals in Hamiltonian mechanics. I. (Russian) 85j:58068a  
 Bifurcation of solutions and the nonexistence of first integrals in Hamiltonian mechanics. II. (Russian) 85j:58068b

## 70E15 Motion of a general rigid body

- Andreev, D. V. On the stability of the permanent rotations of an asymmetric heavy rigid body. 85g:70010  
 Belikov, S. A. Generalization of the Lagrange and Routh theorems to generalized conservative systems and their inversion. (Russian) 85h:70004  
 Chernous'ko, F. L. (with Shamaev, A. S.) Asymptotic behavior of singular perturbations in the problem of dynamics of a rigid body with elastic and dissipative elements. 85e:70003  
 Eliseev, A. S. (with Ivanov, A. P.; Rekka, R. A.) Application of the oscillating function method to the problem of relative motion of a pair consisting of a rigid body and a particle in a circular orbit. (Russian) 85b:70006  
 Gorelov, V. I. (with Sorokin, V. A.) Periodic motions of a rigid body with one fixed point. (Russian) 85c:70004  
 Irtegov, V. D. Steady motions of a Kovalevskaya top. (Russian) 85e:70004  
 Ivanov, A. P. See Eliseev, A. S.; et al., 85b:70006  
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 Konoplev, V. A. Operator equation of motion of a rigid body in a velocity space. (Russian) 85h:70005  
 Koshlyakov, V. N. A modification of the Lagrange top. (Russian) 85f:70005  
 Kur'ma, V. M. (with Lyutyl, A. I.) Resonance vibrations of a gyro horizon compass. (Russian) 85m:70002  
 Lebedev, D. V. Description and calculation of parameters of helical motion of a rigid body. (Russian) 85m:70003  
 Lesina, M. E. (with Kharlamov, P. V.) Cases of integrability of the equations of integral motion of two bodies joined by a spherical linkage. 85m:70004  
 Logachev, A. S. Nondegeneracy of conditionally periodic motions of a heavy rigid body in the Kovalevskaya case. (Russian) 85i:70005  
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 Myrbaeva, S. M. Asymptotes of the trajectory of the center of mass of a rotating body. (Russian. Kazakh summary) 85f:70006  
 Neĭ, N. A. (with Nikitina, N. V.) Analytic description of the motion of a multisection transportation device. (Russian) 85f:70007  
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 Rusinov, I. V. An approach to the problem of motion of a system of three connected bodies. (Bulgarian. English and Russian summaries) 85h:70006  
 Sergeev, V. S. Periodic motions of a heavy, rigid, dynamically almost symmetric body with a fixed point. 85a:70011  
 Shamaev, A. S. See Chernous'ko, F. L., 85e:70003  
 Sorokin, V. A. See Gorelov, V. I., 85c:70004  
 Storozhenko, V. A. (with Temchenko, M. E.) A complete description of steady motions of an axisymmetric rigid body. (Russian) 85b:70007  
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 Vivarelli, Maria Dina Development of spinor descriptions of rotational mechanics from Euler's rigid body displacement theorem. 85m:70005

## secondary classifications (70E15)

- Aminov, Yu. A. Isometric immersions of domains of a three-dimensional Lobachevskii space in a five-dimensional Euclidean space, and motion of a rigid body. (Russian) 85e:53075  
 Antonchik, V. S. Optimal control in the problem of orientation of a rigid body. (Russian) 85c:70036  
 Bogoyavlenskii, O. I. Fourth power integrals for Euler equations on six-dimensional Lie algebras. (Russian) 85e:58060  
 Duboshin, G. N. Cas spéciaux du problème des deux corps solides. (English summary) [Special cases in the problem of two rigid bodies] 85a:70013  
 Hestenes, David Rotational dynamics with geometric algebra. 85i:70016a  
 Holm, Darryl D. (with Marsden, Jerrold E.; Rajiu, Tudor; Weinstein, Alan D.) Stability of rigid body motion using the energy-Casimir method. 85h:58057  
 Karapetyan, A. V. Stability of steady motions of systems of a certain type. 85e:70024  
 Kharlamov, M. P. Motion of a rigid body in the Goryachev-Chaplygin case. (Russian) 85h:58152

- Khorosov, E. I. Exact solutions of the C. Neumann problem on the motion of a point on a sphere under the action of a quadratic potential. (Russian) 85e:58070  
 Marsden, Jerrold E. See Holm, Darryl D.; et al., 85h:58057  
 Meshcheryakov, M. V. A characteristic property of the tensor of inertia of a multidimensional rigid body. (Russian) 85h:58060  
 Novikov, S. P. Hamiltonian formalism and variational-topological methods for finding periodic trajectories of conservative dynamical systems. 85d:58032  
 Rajiu, Tudor See Holm, Darryl D.; et al., 85h:58057  
 Rumyantsev, V. V. On the problem of the stability of motion of complex mechanical systems. (Russian) 85d:70014  
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## 70E20 Perturbation methods for Euler's equations

- Saf'nikova, T. V. Nonintegrability of the perturbed Lagrange problem. (Russian) 85m:70006

## secondary classifications (70E20)

- Bogoyavlenskii, O. I. Dynamics of a rigid body with  $n$  ellipsoidal cavities filled with a magnetic fluid. (Russian) 85e:58042

## 70E99 None of the above, but in this section

- Clements, D. See Ward-Smith, A. J., 85a:70012  
 Ward-Smith, A. J. (with Clements, D.) Numerical evaluation of the flight mechanics and trajectory of a ski-jumper. 85a:70012

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- Bona, C. Rigid-motion conditions in special relativity. 85a:83001  
 Koiller, J. Some simple mechanical systems exhibiting horseshoes and Arnol'd diffusion. (Portuguese summary) 85e:58113  
 Lötstedt, Per Numerical simulation of time-dependent contact and friction problems in rigid body mechanics. 85b:70002  
 Richter, Peter H. W. (with Scholz, H.-J.) Chaos in classical mechanics: the double pendulum. (See 85h:58003)  
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## 70Fxx Dynamics of a system of particles, including celestial mechanics

- Gallullin, A. S. ★ Inverse problems of dynamics. 85i:70007  
 (Wadhwa, Ram S.) See Gallullin, A. S., 85i:70007

## 70F05 Two-body problem

- Bollermann, W. Ein Regularisierungsansatz zum gestörten 2-Körperproblem in Polarkoordinaten. [A regularization ansatz for the perturbed 2-body problem in polar coordinates] 85g:70011  
 Cardin, Franco A generalized theory of classical mechanics for the two-body problem. 85e:70005  
 Cornish, F. H. J. Kepler orbits and the harmonic oscillator. 85f:70008  
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 Ferrer, S. (with Sein-Echaluce, M. L.) On the Szebehely-Bond equation. Generalized Sundman's transformation for the perturbed two-body problem. 85k:70002  
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 Ye, Shu Wu A variational problem concerning the highest flight of a rocket. (Chinese) (Not in MR)

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- Basu, Sujit K. (with Simons, Gordon) Moments spaces for IFR distributions, applications and related material. 85e:62193  
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 Gomis, J. (with Kamimura, K.; Pons, J. M.) Lagrangian formulation of Todorov-Komar model. 85k:70014  
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 Leigemann, Dieter J. A linear solution of the equations of motion of an Earth-orbiting satellite based on a Lie-series. 85a:70054  
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## 70F07 Three-body problem

- Breakwell, J. V. See Howell, Kathleen Connor, 85c:70005  
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 Chen, Zhi Yian Hill curves in the invariable plane of the general three-body problem. 85g:70013  
 Contopoulos, G. (with Pinot, A.) Infinite bifurcations in the restricted three-body problem. 85b:70006  
 Devyatov, L. V. (with Evteev, V. P.) Periodic solutions of the plane restricted elliptic three-body problem. (Russian. Tajiki summary) 85e:70006

- Ding, Hua (with Tong, Fu) Periodic orbits of the first sort in the restricted problem of three bodies with an ellipsoidal primary. 85m:70007
- Duboshin, G. N. Cas spécial du problème restreint des trois corps. (English summary) [Special case of the restricted three-body problem] 85g:70014
- Sur le problème des trois corps solides. (English summary) [On the problem of three rigid bodies] 85g:70015
- Easton, Robert W. Parabolic orbits in the planar three-body problem. 85h:70007
- Emel'yanov, N. V. (with Salyanov, V. N.) Series for the coordinates of rectilinear libration points in the restricted three-body problem. 85a:70016
- Eremenko, E. N. Stationary motions in a restricted problem of three rigid bodies. 85d:70003
- Evtsev, V. P. See Devyatov, L. V., 85e:70006
- Gerasimov, I. A. Trajectories in the plane, circular, restricted three-body problem with a 2:1 resonance. 85d:70004
- Henrard, J. On Brown's conjecture. 85f:70009
- Howell, Kathleen Connor (with Breakwell, J. V.) Almost rectilinear halo orbits. 85c:70006
- Three-dimensional, periodic, "halo" orbits. 85c:70006
- Huang, Cheng Hill's stability in the elliptic restricted three-body model including body shape. 85a:70017
- Ikromov, A. On 6-periodic solutions of the plane, restricted, elliptical three-body problem. 85m:70008
- Ishwar, Bhola See Singh, Jagadish, 85f:70010
- Jefferys, W. H. See Yi, Zhao Hua, 85a:70019
- Kammeyer, P. C. Symmetric rectilinear periodic orbits of three bodies. 85a:70018
- Laskar, Jacques (with Marchal, Christian) Triple close approach in the three-body problem: a limit for the bounded orbits. (French summary) 85b:70009
- Lemaître, A. High-order resonances in the restricted three-body problem. 85b:70010
- Luk'yanov, L. G. Lagrangian solutions in the photogravitational, restricted, circular three-body problem. 85i:70009
- Marchal, Christian See Laskar, Jacques, 85b:70009
- Milani, Andrea (with Nobili, Anna M.) On topological stability in the general three-body problem. 85i:70010
- Ni, Cai Xia (with Zheng, Xue Tang) The effect of a thin ring on the location and the stability of the libration points in the planar circular restricted three-body problem. (Chinese. English summary) 85e:70007
- Nobili, Anna M. See Milani, Andrea, 85i:70010
- Perko, L. M. Periodic solutions of the restricted problem that are analytic continuations of periodic solutions of Hill's problem for small  $\mu > 0$ . 85e:70008
- Pinotale, A. See Contopoulos, G., 85b:70006
- Robanovskii, V. N. Sur la bifurcation et la stabilité des équilibres relatifs du gyrostade dans le problème circulaire restreint généralisé de trois corps. [On the bifurcation and stability of the relative equilibria of the gyrostad in the circular restricted generalized three-body problem] 85m:70009
- Salyanov, V. N. See Emel'yanov, N. V., 85a:70016
- Singh, Jagadish (with Ishwar, Bhola) Effect of perturbations on the location of equilibrium points in the restricted problem of three bodies with variable mass. 85f:70010
- Stagg, Christopher Almost-square orbits in the restricted problem of three bodies. 85f:70011
- Tong, Fu See Ding, Hua, 85m:70007
- Yan, Zhi Ming The changes of the argument of periastron and configurations of the orbit in the general three-body problem. (Chinese. English summary) 85f:70012
- Yi, Zhao Hua (with Jefferys, W. H.) On the computation of the Lyapunov characteristic numbers of the planar restricted three-body problem. 85a:70019
- Zheng, Xue Tang See Ni, Cai Xia, 85e:70007

## secondary classifications (70F07)

- Ferraz-Mello, S. See Sessin, W., 85m:70011
- Gómez, Gerard Families of critical orbits in the families (a) and (b) of periodic orbits of the circular planar restricted three-body problem. (Spanish) (See 85h:00011a)
- Jia, Pei Zhang (with Zheng, Xue Tang) Effect of a perturbing potential on the stability of periodic solutions of the first kind. 85e:58123
- Johnson, B. R. The classical dynamics of three particles in hyperspherical coordinates. 85d:81196a
- The quantum dynamics of three particles in hyperspherical coordinates. 85d:81196b
- Kummer, Martin On the three-dimensional lunar problem and other perturbation problems of the Kepler problem. 85b:58046
- Martinez i Barchino, Regina Quasirandom motion in the circular, planar, restricted three-body problem. (Catalan. English summary) 85i:58107
- Robinson, Clark Homoclinic orbits and oscillation for the planar three-body problem. 85f:58107
- Sessin, W. (with Ferraz-Mello, S.) Motion of two planets with periods commensurable in the ratio 2:1; solutions of the Hori auxiliary system. 85m:70011
- Šidlichovský, M. Problem of three rigid bodies. Conversion of the Hamiltonian to Delaunay and Andoyer variables. (Russian summary) 85a:34068
- Tepeuo, İosif Sur certains mouvements centraux plans dans un milieu résistant. [On certain plane central motions in a resisting medium] 85e:70001
- Yoshida, Haruo Necessary condition for the existence of algebraic first integrals. II. Hardon for algebraic integrability. 85i:58052
- Zheng, Xue Tang See Jia, Pei Zhang, 85e:58123

70F10 *n*-body problem

- Arasov, G. T. Differential equations for the osculating elements of the intermediate orbit of the problem of three fixed centers. 85f:70013
- Davies, Ian (with Truman, Aubrey; Williams, David) Classical periodic solution of the equal-mass 2n-body problem, 2n-ion problem and the *n*-electron atom problem. 85a:70020

- Deprit, André Elimination of the nodes in problems of *n* bodies. 85d:70005
- Galperin, G. A. (with Khodulev, A. B.) Planar cases in the three-dimensional four-body problem with one attracting center. (Russian) 85f:70014
- Gervert, Joseph L. A possible model for a singularity without collisions in the five body problem. 85i:70011
- Khodulev, A. B. See Galperin, G. A., 85f:70014
- Marciulak, Andrzej Discrete mechanics and its application to the solution of the *n*-body problem. 85k:70003
- Milani, Andrea (with Nobili, Anna M.) On the stability of hierarchical four-body systems. 85a:70021
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- Nobili, Anna M. See Milani, Andrea, 85a:70021
- Ray, John R. See Reid, James L., 85a:70022
- Reid, James L. (with Ray, John R.) Higher-order special selfadjoint equations and particle dynamics. 85a:70022
- Saari, Donald G. An equality which yields zero velocity surfaces. 85f:70015
- Sabata, Hideki Reduced mass for a many-body system. (Japanese. English summary) 85m:70012
- Szebehely, V. See Whipple, Arthur L., 85b:70011
- Truman, Aubrey See Davies, Ian; et al., 85a:70020
- Whipple, Arthur L. (with Szebehely, V.) The restricted problem of *n* + *v* bodies. 85b:70011
- Equilibrium solutions of the restricted problem of 2 + 2 bodies. 85k:70004
- Williams, David See Davies, Ian; et al., 85a:70020

## secondary classifications (70F10)

- Berkshire, F. H. (with Gibbon, J. D.) Collapse in the *n*-dimensional nonlinear Schrödinger equation—a parallel with Sundman's results in the *N*-body problem. 85a:58029
- Bowtell, Graham (with Stuart, Allen E. G.) A particle representation for Korteweg-de Vries solitons. 85b:35051
- Duneau, M. (with Katz, André) Generic properties of classical *n*-body systems, in one dimension, and crystal theory. (French summary) 85b:58043
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- See also Duneau, M., 85b:58043
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- Mei, Feng Xiang Extension of Whittaker equations to nonholonomic mechanical systems. 85f:70018
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- Čović, Vukman On the commutativity of the variation and differentiation operators in the mechanics of nonholonomic systems. (Serbo-Croatian. French summary) 85m:70027
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- Krasinskaya, E. M. On the stabilization of steady-state motions of mechanical systems. 85b:70027
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Zakharov, M. G. (with Kul'chitskii, O. Yu.) Investigation of the stability of systems of linear differential equations with parametric excitation by correlated noise using the method of integro-differential inequalities. 85h:70016

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- Analysis of the dynamic stability of two-degree mechanical systems in the presence of parametric oscillations in the system. (Russian) (See 85b:00006)
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- Parametric excitation in the self-excited vibration system with dry friction. II. In the neighborhood of the region of parametric resonance. 85b:70025b

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- Damgov, V. N. (with Duboshinskii, D. B.; Duboshinskii, Ya. B.) Argument excitation of undamped oscillations. (Russian) 85i:70034
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- Zakharov, M. G. (with Kul'chitskii, O. Yu.) Investigation of the stability of systems of linear differential equations with parametric excitation by correlated noise using the method of integro-differential inequalities. 85b:70016

70J99 None of the above, but in this section

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- Bakae, N. Yu. The problem of continuation of trajectories of differential equations in Banach space and its applications to the equations of mechanics and electrodynamics with separation of steady-state (oscillatory) and damping modes. (Russian) 85m:34088
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- Thompson, J. M. T. An introduction to nonlinear dynamics. 85g:34001
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- Bélair, Jacques (with Holmes, Philip) On linearly coupled relaxation oscillations. 85g:58050
- Bukhalova, N. V. See Batalova, Z. S., 85j:58110
- Burton, T. D. On the amplitude decay of strongly nonlinear damped oscillators. 85a:34051
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- Chirikov, B. V. Chaotic dynamics in Hamiltonian systems with divided phase space. 85e:58083
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- Hamdan, M. N. See Burton, T. D., 85a:34052
- Holmes, Philip See Guckenheimer, John, 85f:58002 and Bélair, Jacques, 85g:58050
- Jing, Zhu Jun Application of qualitative methods of differential equations to study phase-locked loops. 85a:34053
- Kapral, Raymond See Schell, Mark; et al., 85b:58098
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- Pronchato, V. E. Error estimate for the averaging method in the two-frequency problem. (Russian) 85d:34048
- Schell, Mark (with Fraser, Simon; Kapral, Raymond) Subharmonic bifurcation in the sine map: an infinite hierarchy of cusp bistabilities. 85b:58098
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- Li, Ji Bin Limit cycles of soft spring systems with nonlinear damping and their application to mechanical oscillation. (Chinese) (Not in MR)
- Noella, Silvio Integration of the Duffing equation and its extensions. (Italian) 85g:70028
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- Liu, Zong Ze (with Tian, Jing Huang) ★ On toral van der Pol equations. 85c:34049
- Murase, Chiaki (with Sakanoue, Shinji) Unstable and stable limit cycle in the Oregonator model for the Belousov-Zhabotinskii reaction. 85a:92014
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- Wang, Xian On Liénard's soft spring system of degree  $n$ . I. (Chinese. English summary) 85b:70026

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- Khapaev, M. M. (with Shinkin, V. N.) On investigating resonant almost-periodic systems for stability with respect to a part of the variables. 85b:70018
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- Cantarelli, Giancarlo Method for studying the stability of generalized merostatic motion. (Italian. English summary) 85m:70012
- Diamond, Phil Modified relative invariants and Liapunov functions. 85k:34118
- Karimzhanov, A. (with Kosolapov, V. I.) The use of limit systems in the study of stability by means of Lyapunov functions. (Russian) 85j:34093
- Kertész, Viktor Application of indefinite Lyapunov function for stability investigations. (Not in MR)
- Kosolapov, V. I. See Karimzhanov, A., 85j:34093

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- Hsu, Liu Analysis of critical and post-critical behaviour of nonlinear dynamical systems by the normal form method. I. Normalization formulae. 85f:70036a
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- Sosulskii, S. P. On the problem of gyroscopic stabilization. *85e:70026*
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- Wang, Zhao Lin (with Huang, Shi Tao) Methods of large-scale systems with weighted  $V$  functions and stability of mechanical systems. (Chinese. English summary) *85i:70032*
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- Zevin, Aleksandr Aremovich Qualitative investigation of stability of periodic oscillations and rotations in parametrically excited nonlinear second-order systems. *85e:70040*
- Stability of fundamental forced oscillations in essentially nonlinear systems with one degree of freedom. (Russian) *85i:70033*

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- Bretaudenau, F. See Vidal, O., *85d:93035*
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- Gulyaev, V. I. (with Lisunov, P. P.; Prudenko, N. N.) Stability of nonlinear vibrations for a two-body system in a central force field. *85g:70032*
- Hobs, S. M. See Howard, J. E., *85e:58089*
- Howard, J. E. (with Hobs, S. M.) Stochasticity and reconnection in Hamiltonian systems. *85e:58089*
- Hsu, Chieh Su Singularities of  $N$ -dimensional cell functions and the associated index theory. (French and German summaries) *85e:58084*
- Kim, Sang-Yoon See Lee, Koo-Chul; et al., *85m:58132*
- Kurbanov, P. Classification and stability of resonance regimes of certain nonlinear viscoelastic systems. *85e:48014*
- Lee, Koo-Chul (with Kim, Sang-Yoon; Choi, D. I.) Universality of  $k \cdot 3^n$  and  $k \cdot 4^n$  bifurcations in area-preserving maps. *85m:58132*
- Ling, Fu Hua A numerical treatment of the periodic solutions of nonlinear vibration systems. *85d:70001*
- Lisunov, P. P. See Gulyaev, V. I.; et al., *85g:70032*
- MacKay, R. S. (with Meiss, J. D.; Percival, I. C.) Stochasticity and transport in Hamiltonian systems. *85i:58092*
- Meiss, J. D. See MacKay, R. S.; et al., *85i:58092*
- Mukhametyanov, I. A. (with Serikbaev, A.) The effect of nonlinear nonpotential forces on the stability of steady motions of nonholonomic Chaplygin systems. (Russian. Kazakh summary) *85m:70014*
- Nipp, Kaspar An extension of Tikhonov's theorem in singular perturbations for the planar case. (German summary) *85h:34070*
- Percival, I. C. See MacKay, R. S.; et al., *85i:58092*
- Petrovsky, T. Y. Chaos and irreversibility in a conservative nonlinear dynamical system with a few degrees of freedom. *85i:58087*
- Prudenko, N. N. See Gulyaev, V. I.; et al., *85g:70032*
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- Serikbaev, A. See Mukhametyanov, I. A., *85m:70014*
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- Veretennikov, V. G. (with Zaitsev, V. V.) The necessary and sufficient conditions of stability in the large. *85h:34064*
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## 70K30 Nonlinear resonances

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- Damgov, V. N. (with Duboshinskii, D. B.; Duboshinskii, Ya. B.) Argument excitation of undamped oscillations. (Russian) *85i:70034*
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- James, Eleanor M. See El-Abbasy, E. M., *85a:65117*
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- Thompson, J. M. T. (with Ghaffari, R.) Chaotic dynamics of an impact oscillator. 85a:58068
- Tsuda, I. See Matsumoto, Kenji, 85f:58100a and 85f:58100b
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#### 70K99 None of the above, but in this section

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- Nguyen Dong An' Random vibrations in nonlinear systems under the action of white noise passing through a linear filter having negative characteristic numbers. (Russian) 85e:70031
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## 70Q05 Control of mechanical systems [See also 49Exx, 90D25, 90D26, 93Cxx, 93Dxx.]

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B'chvarov, S. N. (with Arnaudov, K. S.) Single-frequency forced vibrations of a controllable automobile with resonance in the motor system. (Bulgarian. German and Russian summaries) (Not in MR)

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Mellakhs, A. M. Control of the rotational motion of a rigid body. (Russian) 85c:70023

Nguyen Chyong See Bolotnik, N. N., 85g:70034

Tertychnyi, V. Yu. The inverse method of dynamic perturbations in the problem of locomotion synthesis. (Russian. English summary) 85f:70050

Velts, V. L. (with Kolovskii, M. Z.; Kochura, A. E.) ★Динамика управляемых машинных агрегатов. (Russian) [The dynamics of controllable machine aggregates] 85i:70041

Voronetskaya, D. K. Synthesis of adaptive control in the problem of tracking by a manipulator of programmed motion. (Russian) (See 85g:00012)

Vujčić, Veljko A. Optimal control of the motion of a holonomic system. (Serbo-Croatian. English summary) 85k:70026

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Bashenov, V. A. (with Gulyaev, V. I.; Markovskaya, E. O.) Optimal control of nonlinear mechanical systems. (Russian) 85f:49047

Beletskii, V. V. ★Двухногий ход. (Russian) [Bipedal locomotion] 85k:92004

Berenstein, Carlos A. See Krishnaprasad, P. S., 85h:58051

Bretaudau, F. See Vidal, O., 85c:93035

Deptyarev, G. L. (with Sirazetdinov, T. K.) Optimal control in distributed parameter systems with incomplete measurement of the state (a survey). 85c:93126

Gallullin, A. S. ★Inverse problems of dynamics. 85i:70007

Gulyaev, V. I. See Bashenov, V. A.; et al., 85f:49047

Ivanilov, Yu. P. Applicability of methods of analytical mechanics in optimal control. 85h:49035

Krishnaprasad, P. S. (with Berenstein, Carlos A.) On the equilibria of rigid spacecraft with rotors. 85h:58051

Kukushkin, A. P. Optimal trajectories in a potential field. (Russian) 85d:49026

Markovskaya, E. O. See Bashenov, V. A.; et al., 85f:49047

Samylovskii, A. I. (with Sushkov, B. G.) Structure and dynamics of an optimal control system. 85g:49036



- Shalfeev, V. D. Qualitative investigation of the cylindrical phase space of a nonlinear dynamical system from the theory of phase synchronization. (Russian) 85c:59063
- Siraseddinov, T. K. See Degtyarev, G. L., 85c:93126
- Sushkov, B. G. See Samylovskii, A. I., 85g:49036
- Vidal, O. (with Bretaudeau, F.) Vibrational stabilization of autonomous quadratic systems. 85d:93035
- (Wadhwa, Ram S.) See Gallullin, A. S., 85i:70007
- Zubov, A. V. On the question of indirect control of a multidimensional mechanical system. (Russian) 85g:93043

### 73-XX MECHANICS OF SOLIDS

- Atkinson, Colin (with Champion, C. R.) Some boundary-value problems for the equation  $\nabla \cdot (|\nabla \varphi|^N \nabla \varphi) = 0$ . (Not in MR)
- Champion, C. R. See Atkinson, Colin. (Not in MR)
- Kim, Min Kyu Mechanical properties of air membrane bars. (Korean. English summary) (Not in MR)

#### 73-01 Elementary exposition; textbooks

secondary classifications (73-01)

- Banichuk, N. V. ★ Problems and methods of optimal structural design. 85b:73031
- Beards, C. F. ★ Structural vibration analysis. 85c:73047
- (Haug, Edward J.) See Banichuk, N. V., 85b:73031
- (Komkov, V.) See Banichuk, N. V., 85b:73031
- Lleó Morilla, A. ★ Tensores cartesianos y sus aplicaciones. (Spanish) [Cartesian tensors and their applications] 85a:53016
- Steklov, V. A. ★ Основные задачи математической физики. (Russian) [Fundamental problems in mathematical physics] 85h:01033
- (Vladimirov, V. S.) See Steklov, V. A., 85h:01033
- Bibliography:
- Steklov, V. A. See Steklov, V. A., 85h:01033
- Biography:
- Steklov, V. A. See Steklov, V. A., 85h:01033
- Fundamental problems in mathematical physics See Steklov, V. A., 85h:01033

#### 73-02 Advanced exposition (research surveys, monographs, etc.)

- Backhaus, Georg ★ Deformationsgesetze. (German) [Laws of deformation] 85b:73001
- (Der-Megreditchian, Christianne) See Parton, V. Z., 85c:73001
- Parton, V. Z. (with Perlin, P. I.) ★ Équations intégrales de la théorie de l'élasticité. (French) [Integral equations of elasticity theory] 85c:73001
- Perlin, P. I. See Parton, V. Z., 85c:73001

secondary classifications (73-02)

- Aleksandrov, V. M. (with Mkhitarian, S. M.) ★ Контактные задачи для тел с тонкими покрытиями и прослойками. (Russian) [Contact problems for bodies with thin coverings and layers] 85i:73030
- Axelrad, D. R. ★ Foundations of the probabilistic mechanics of discrete media. 85i:73003
- Grigor'yan, A. T. (with Kirsanov, V. S.) Development of certain trends in mechanics in the U.S.S.R. 85i:01001
- Kirsanov, V. S. See Grigor'yan, A. T., 85i:01001
- Kunin, Isaak A. ★ Elastic media with microstructure. II. 85d:73030
- Lar'kin, N. A. (with Novikov, V. A.; Yanenko, N. N.) Equations of nonclassical types and their applications in continuum mechanics. (Russian) 85f:35181
- Mathduna, Diarmuid Ó. Mechanics, boundary layers and function spaces. 85g:73026
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- Novikov, V. A. See Lar'kin, N. A.; et al., 85f:35181
- Yanenko, N. N. See Lar'kin, N. A.; et al., 85f:35181

#### 73-03 Historical (must also be assigned at least one classification number from Section 01)

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- Antman, Stuart S. The influence of elasticity on analysis: modern developments. 85f:01005
- Bogolyubov, Aleksei Nikolaevich Establishment of machine dynamics. (Russian) 85m:01022
- Lishevskii, V. P. On the history of research in fiber mechanics in Russia during the 19th century. (Russian) (See 85d:01001)
- Motylevskaya, R. E. P. A. Schiff's work in elasticity theory. (Russian) 85m:01034
- Müller, Heinz Zur Entwicklung der theoretischen Tragwerksmechanik. [On the development of theoretical structural mechanics] (Not in MR)
- Pelekh, B. L. See Podstrigach, Ya. S., (85g:01004)
- Podstrigach, Ya. S. (with Pelekh, B. L.) Mechanics of a deformable rigid body. (Russian) (See 85g:01004)
- Sachenkov, A. V. The Kazan school of the mechanics of shells (on the occasion of the one hundred and seventy fifth anniversary of Kazan State University). (Russian) (Not in MR)
- Truesdell, C. The influence of elasticity on analysis: the classic heritage. 85f:01004
- Zumpe, Günter Zur Entwicklung der Flächentragwerke. [On the development of two-dimensional structures] (Not in MR)

#### 73-04 Explicit machine computation and programs (not the theory of computation or programming)

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- Altenbach, J. See Sakharov, A. S.; et al., 85b:73028
- Dankert, J. See Sakharov, A. S.; et al., 85b:73028
- Gabbert, U. See Sakharov, A. S.; et al., 85b:73028
- Horsington, R. W. See Wittrick, W. H., 85b:73016
- Kirichevskii, V. V. See Sakharov, A. S.; et al., 85b:73028
- Kislookii, V. N. See Sakharov, A. S.; et al., 85b:73028
- Köppler, H. See Sakharov, A. S.; et al., 85b:73028
- Kossuk, S. See Sakharov, A. S.; et al., 85b:73028
- (Probst, R.) See Sakharov, A. S.; et al., 85b:73028
- Sakharov, A. S. (with Kislookii, V. N.; Kirichevskii, V. V.; Altenbach, J.; Gabbert, U.; Dankert, J.; Köppler, H.; Kossuk, S.) ★ Метод конечных элементов в механике твердых тел. (Russian) [The finite element method in the mechanics of solid bodies] 85b:73028
- Schwarz, Fritz Lie symmetries of the von Kármán equations. 85g:73027
- (Vetrov, Yu. A.) See Sakharov, A. S.; et al., 85b:73028
- Wittrick, W. H. (with Horsington, R. W.) Buckling and vibration of composite folded-plate structures of finite length in combined shear and compression. 85b:73016

#### 73-06 Proceedings, conferences, etc.

- (Brebba, C. A.) See Boundary element methods in engineering. 85d:73001 and Boundary element methods. 85h:73001
- (Gordon, V. A.) See Applied mathematics and continuum mechanics. 85c:73001
- (Haug, Edward J.) See Computer aided analysis and optimization of mechanical system dynamics. 85i:73001
- (Hennig, Klaus) See Report on the Karl-Marx-Stadt seminars on the mechanics of solids and fracture mechanics, 1981/1982. 85c:73002
- (Lehmann, Th.) See Constitutive law in thermoplasticity. 85j:73001
- (Michel, B.) See Report on the Karl-Marx-Stadt seminars on the mechanics of solids and fracture mechanics, 1981/1982. 85c:73002
- (Sedov, L. I.) See Mechanics of a solid deformable body. 85a:73001
- (Shapiro, G. S.) See Mechanics of deformable solid bodies. 85g:73001
- (Shlimak, V. V.) See Mechanics of deformable solid bodies. 85g:73001
- Applied mathematics and continuum mechanics ★ Прикладная математика и механика сплошных сред. (Russian) [Applied mathematics and continuum mechanics] 85c:73001
- Boundary element methods ★ Boundary element methods. 85h:73001
- Boundary element methods in engineering ★ Boundary element methods in engineering. 85d:73001
- Computer aided analysis and optimization of mechanical system dynamics ★ Computer aided analysis and optimization of mechanical system dynamics. 85i:73001
- Constitutive law in thermoplasticity ★ The constitutive law in thermoplasticity. 85j:73001
- Iowa City, Iowa ★ Computer aided analysis and optimization of mechanical system dynamics. 85i:73001
- Irvine, Calif. ★ Boundary element methods. 85h:73001
- Izgi Nauki i Tekhniki ★ Механика деформируемого твердого тела. Том 15. (Russian) [Mechanics of a solid deformable body. Vol. 15] 85a:73001
- Mechanics of a solid deformable body ★ Механика деформируемого твердого тела. Том 15. (Russian) [Mechanics of a solid deformable body. Vol. 15] 85a:73001
- Mechanics of deformable solid bodies ★ Механика деформируемых твердых тел. (Russian) [Mechanics of deformable solid bodies] 85g:73001
- NATO advanced study institute: Computer aided analysis and optimization of mechanical system dynamics ★ Computer aided analysis and optimization of mechanical system dynamics. 85i:73001
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- Report on the Karl-Marx-Stadt seminars on the mechanics of solids and fracture mechanics, 1981/1982 ★ Report: Karl-Marx-Städter Seminare über Festkörpermechanik und Bruchmechanik, 1981/1982. I. (German) [Report on the Karl-Marx-Stadt seminars on the mechanics of solids and fracture mechanics, 1981/1982. I.] 85c:73002
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- Boundary element methods in engineering ★ Boundary element methods in engineering. 85d:73001
- Southampton ★ Boundary element methods in engineering. 85d:73001
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- (Emmerling, F. A.) See Flexible shells. 85h:73042
- (Maugin, Gérard A.) See Mechanical behavior of electromagnetic solid continua. 85d:76024
- (Miller, J. J. H.) See Conference: BAIL. 85k:00008
- (Roeau, M.) See Trends and applications of pure mathematics to mechanics. 85g:76004
- Conference: BAIL ★ BAIL III. 85k:00008
- Boundary and interior layers—computational and asymptotic methods ★ BAIL III. 85k:00008

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Palaisau ★ Trends and applications of pure mathematics to mechanics. 85g:70004

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Mechanical behavior of electromagnetic solid continua ★ The mechanical behavior of electromagnetic solid continua. 85d:70024

Trends and applications of pure mathematics to mechanics ★ Trends and applications of pure mathematics to mechanics. 85g:70004

Trends and applications of pure mathematics to mechanics ★ Trends and applications of pure mathematics to mechanics. 85g:70004

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Gagliola, T. G. Numerical solutions of the basic problems of elasticity theory by the method of singular integral equations. (Russian) 85m:73001

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Hu, Hai Chang On the convergence of displacement and other quantities in the Ritz method. (Chinese. English summary) 85f:73001

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Kobayashi, S. (with Nishimura, Naoshi) On the indeterminacy of BIE solutions for the exterior problems of time-harmonic elastodynamics and incompressible elastostatics. 85d:73002

Labbe Z, Fernando Fundamental aspects of the boundary integral method in elasticity. (Spanish. English summary) 85h:73002

Lamp, U. (with Schleicher, T.; Stephan, E.; Wendland, W. L.) Theoretical and experimental asymptotic convergence of the boundary integral method for a plane mixed boundary value problem. 85e:73002

Lasarev, M. I. On solving external boundary value problems of the theory of elasticity using the method of boundary integral equations. 85k:73003

McCartney, L. N. A new boundary element technique for solving plane problems of linear elasticity: improved theory and an application to fracture mechanics. 85j:73002

Morosev, N. F. (with Paukshto, M. V.) Discrete models of two-dimensional elasticity theory. (Russian. Armenian summary) 85b:73002

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- Bressan, Aldo Nonstationary ideal fluids in classical physics under a possibly strong heat flux. (Italian summary) 85c:76005  
 Brun, Louis (with Potier-Ferry, Michel) Constitutive inequalities and dynamic stability in the linear theories of elasticity and thermoelasticity. 85k:73016  
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## secondary classifications (73B20)

- Gheorghiev, Gh. Deformations and special infinitesimal diffeomorphisms related to Riemannian structures. Applications to continuous media. (Romanian. French summary) 85c:53042

## 73B25 Multipolar stress theory

- Capriz, G. (with Podio-Guidugli, P.) Structured continua from a Lagrangian point of view. 85j:73004  
 Drago, László Fundamental solutions in micropolar elasticity. 85a:73007  
 Dyzlewicz, Janusz Selected boundary value problems of micropolar elasticity. (French, Russian and Polish summaries) 85m:73002  
 Ieșan, D. Torsion problem for nonsimple Cosserat elastic materials. (Russian summary) 85j:73005  
 Morosanu, Veronica A mathematical model of a linear isotropic hyperelastic micropolar medium in inertial motion, studied in the context of invariant mechanics. (Romanian. French summary) 85a:73008  
 Podio-Guidugli, P. See Capriz, G., 85j:73004  
 Sæviđ, Gy. Dual variational principles in linear micropolar elastostatics. 85c:73004

## secondary classifications (73B25)

- Dahgmaide, A. Ya. See Natsroshvili, D. G., 85f:73087  
 Natsroshvili, D. G. (with Dahgmaide, A. Ya.) Boundary-contact problems of statics of the moment theory of elasticity. (Russian. English and Georgian summaries) 85f:73087  
 Sabelfeld, K. K. (with Simonov, N. A.) Solution of three-dimensional problems of the theory of elasticity in deterministic and stochastic formulations by the Monte Carlo method. (Russian) 85f:73063  
 Simonov, N. A. See Sabelfeld, K. K., 85f:73063

## 73B30 Thermodynamics of solids [See also 73U05; for gases and fluids, see 80-XX.]

- Bernstein, Barry A unified thermodynamic theory of elasticity and plasticity. 85f:73008  
 See also Olsen, Elwood T., 85j:73006  
 Bressan, Aldo On the relativistic nonstationary law of heat conduction and the objectivity principle. Piezo-elasticity. (Italian summary) 85h:73006  
 Corvaja, M. Thermal and electrical conduction in nonstationary thermodynamics. (Italian. English and French summaries) 85a:73009  
 Giorgi, Claudio (with Lazzari, Barbara) On the free energy for an elastoplastic material subject to finite isothermal deformations. (Italian. English summary) 85k:73008  
 Kluitenberg, G. A. Plasticity and nonequilibrium thermodynamics. (See 85j:73001)  
 Lazzari, Barbara See Giorgi, Claudio, 85k:73008  
 Marques, M. D. P. M. Hyperélasticité et existence de fonctionnelle énergie. (English summary) [Hyperelasticity and existence of an energy functional] 85k:73009  
 Olsen, Elwood T. (with Bernstein, Barry) A class of hypo-elastic nonelastic materials and their thermodynamics. 85j:73006  
 Povstenko, Yu. Z. Tensor thermodynamic functions for deformable solid bodies. (Russian) 85h:73006  
 Ziegler, Hans ★ An introduction to thermomechanics. 85b:73005

## secondary classifications (73B30)

- Batra, Romesh C. See Passman, Stephen L., 85h:80005  
 Chiriță, S. Uniqueness and continuous dependence results in thermodynamics with internal state variables. (Russian and Polish summaries) 85c:73075  
 Esposito, Raffaele (with Iannace, Donatella) Existence of the internal energy and entropy for relativistic continuous systems. (Italian summary) 85c:80001  
 Iannace, Donatella See Esposito, Raffaele, 85c:80001  
 Londen, S.-O. (with Nobel, John A.) Nonlinear Volterra integro-differential equation occurring in heat flow. 85j:45027  
 Manacorda, T. Macroscopic theory of internal radiation in continua. (Italian. English summary) 85d:76019  
 Nobel, John A. See Londen, S.-O., 85j:45027  
 Passman, Stephen L. (with Batra, Romesh C.) A thermomechanical theory for a porous anisotropic elastic solid with inclusions. 85h:80005  
 Podio-Guidugli, P. (with Suliciu, I.) On rate-type viscoelasticity and the second law of thermodynamics. 85k:73043  
 Suliciu, I. See Podio-Guidugli, P., 85k:73043

## 73B35 Random materials

- Uatsev, K. Sh. On the solution of a plane boundary value problem for randomly inhomogeneous bodies by the method of spectral representations. (Russian) 85f:73099

## 73B99 None of the above, but in this section

- Capriz, M. A general field theory of Cauchy continuum: classical mechanics. 85a:73010  
 Carr, Jack Phase transitions via bifurcation from heteroclinic orbits. 85i:73004  
 Casey, J. (with Naghdi, P. M.) On the use of invariance requirements for intermediate configurations associated with the polar decomposition of a deformation gradient. 85f:73010  
 Chen, Zhi Da On the compatibility condition of displacement field for finite deformation of continuum. 85m:73003  
 Dokainish, M. A. See Gadala, M. S.; et al., 85f:73011  
 Drouot, R. See Maugin, Gérard A., 85a:73011  
 Gadala, M. S. (with Dokainish, M. A.; Oravas, G. Ae.) Formulation methods of geometric and material nonlinearity problems. 85f:73011  
 Guo, Zhong Heng On the simple shear decompositions of a deviator. 85k:73010  
 Gurtin, M. E. One-dimensional structured phase transitions on finite intervals. 85k:73011  
 Kosiński, W. On global evolution of states of deformable bodies. 85f:73012  
 Maugin, Gérard A. (with Drouot, R.) Internal variables and the thermodynamics of macromolecule solutions. 85a:73011  
 Muncaster, Robert G. Invariant manifolds in mechanics. I. The general construction of coarse theories from fine theories. 85g:73003a  
 Invariant manifolds in mechanics. II. Zero-dimensional elastic bodies with directors. 85g:73003b  
 Murdoch, A. I. On material frame-indifference, intrinsic spin, and certain constitutive relations motivated by the kinetic theory of gases. 85a:73012  
 Naghdi, P. M. See Casey, J., 85f:73010  
 Oravas, G. Ae. See Gadala, M. S.; et al., 85f:73011  
 Pipkin, A. C. Inextensible networks deformed as translation surfaces. 85a:73013  
 Romano, Giovanni On the variational condition of compatibility. 85f:73005  
 Tkachenko, N. E. (with Tkachenko, S. E.) Cyclic variable fields and analogues of Routh equations in continuum mechanics. (Russian) 85f:73013  
 Tkachenko, S. E. See Tkachenko, N. E., 85f:73013  
 Villaggio, Piero Kelvin's solution and nuclei of strain in a solid mixture. 85a:73014



## secondary classifications (73B99)

- Borrelli, Alessandra (with Patria, Maria Cristina) Uniqueness in the boundary value problems for the static equilibrium equations of a mixture of two elastic solids occupying an unbounded domain. **85a:73017**
- Capriz, G. Spatial variational principles in continuum mechanics. **85b:49061**
- Cohen, Harley (with Muncaster, Robert G.) The dynamics of pseudorigid bodies: general structure and exact solutions. **85k:73023**
- Diekmann, O. (with Metz, J. A. J.; Kooijman, S. A. L. M.; Heijmans, H. J. A. M.) Continuum population dynamics with an application to *Daphnia magna*. **85c:92029**
- Guo, Zhong Heng Recent investigations on strain and stress rates in nonlinear continuum mechanics. **85c:73003**
- Heijmans, H. J. A. M. See Diekmann, O.; et al., **85c:92029**
- Holm, Darryl D. (with Kupersmidt, B. A.; Levermore, C. David) Canonical maps between Poisson brackets in Eulerian and Lagrangian descriptions of continuum mechanics. **85b:58045**
- Kooijman, S. A. L. M. See Diekmann, O.; et al., **85c:92029**
- Kosiński, W. A note on stability of dissipative bodies. **85b:73017**
- Kupersmidt, B. A. See Holm, Darryl D.; et al., **85b:58045**
- Levermore, C. David See Holm, Darryl D.; et al., **85b:58045**
- Metz, J. A. J. See Diekmann, O.; et al., **85c:92029**
- Morvan, J.-J. Cinématique de variétés  $C^1$  et transport de mesures scalaires. [Kinematics of  $C^1$  manifolds and transport of scalar measures] **85b:58027**
- Muncaster, Robert G. See Cohen, Harley, **85k:73023**
- Patria, Maria Cristina See Borrelli, Alessandra, **85a:73017**

### 73Cxx Elasticity (For the biharmonic equation, see 31A30, 31B30; for acoustics, see 76Q05.)

## secondary classifications (73Cxx)

- Truesdell, C. The influence of elasticity on analysis: the classic heritage. **85f:01004**

## 73C02 Classical linear elasticity

- Abramides, E. A. Construction of correcting functions in Almansi-Michell problems by means of fundamental solutions. (Russian) **85c:73004**
- Berlyand, L. V. Averaging of equations of the linear theory of elasticity in domains with a fine-grained boundary. I. (Russian) **85g:73004**
- Averaging of equations of the linear theory of elasticity in domains with a coarse-grained boundary. II. (Russian) **85g:73005**
- Carlsen, Donald E. A note on the solutions of Boussinesq, Love, and Marguerre in axisymmetric elasticity. **85c:73005**
- Fan, Tian You Supplement to displacement functions of three-dimensional problems of elasticity mechanics. (Chinese. English summary) **85c:73006**
- Fleishman, N. P. See Likhachev, V. A., **85j:73007**
- Grinberg, G. A. On a possible method of approach to the solution of the biharmonic equation  $\Delta^2 w = \Phi$  under different boundary conditions at the boundary of a plane or spatial domain. (Russian) **85i:73006a**
- Correction: "On a possible method of approach to the solution of the biharmonic equation  $\Delta^2 w = \Phi$  under different boundary conditions at the boundary of a plane or spatial domain". (Russian) **85i:73006b**
- Gutiérrez Cardona, A. On the invertibility of operators related to the boundary value problems of elastostatics on  $C^1$ -domains. **85f:73014**
- Homentcovschi, Dorel Uniform asymptotic solutions of two-dimensional problems of elasticity for the domain exterior to a thin region. **85f:73015**
- Jawon, M. A. Some theoretical aspects of boundary integral equations. **85i:73007**
- Kapshivy, A. A. (with Lomonos, L. N.; Stoyan, N. N.) The second fundamental problem of the axisymmetric stressed state of a space with two spherical cavities. (Russian. English summary) **85f:73016**
- Kawohl, B. When are superharmonic functions concave? Applications to the St. Venant torsion problem and to the fundamental mode of the clamped membrane. (Not in MR)
- Kukulava, R. I. A variant of the problem of bending by moments of slightly conic isotropic cylinders. (Russian) **85c:73005**
- Likhachev, V. A. (with Fleishman, N. P.) Beltrami-Michell compatibility equations. (Russian. English summary) **85j:73007**
- Liu, Shi Qiang Periodic fundamental problems of an elastic strip. (Chinese. English summary) **85m:73004**
- Lomonos, L. N. See Kapshivy, A. A.; et al., **85f:73016**
- Oleinik, O. A. Behavior of solutions of a system of equations of the theory of elasticity at infinity. (Russian) **85m:73005**
- Ostrosablin, N. I. A general representation of the solution of equations of the linear theory of elasticity of an isotropic body. (Russian) **85f:73017**
- Patterson, Clifford (with Sheikh, M. A.) Regular boundary integral equations for stress analysis. **85i:73006**
- Payne, L. E. (with Wheeler, L. T.) On the cross section of minimum stress concentration in the Saint-Venant theory of torsion. **85c:73006**
- Podio-Guidugli, P. (with Vergara-Caffarelli, G.) On a class of live traction problems in elasticity. **85k:73012**
- Sheikh, M. A. See Patterson, Clifford, **85i:73006**
- Sheremet, V. D. The influence tensor of a locally mixed problem for an elastic half space. (Russian) **85f:73018**
- Stoyan, N. N. See Kapshivy, A. A.; et al., **85f:73016**
- Ting, T. C. T. The wedge subjected to tractions: a paradox re-examined. **85m:73006**
- Tskhketavi, G. V. Saint-Venant problems for homogeneous "curvilinearly conic" isotropic bodies with end loading. (Russian) **85b:73007**
- Vergara-Caffarelli, G. See Podio-Guidugli, P., **85k:73012**
- Wheeler, L. T. See Payne, L. E., **85c:73006**

- Zargaryan, S. S. Singularities of solutions of a system of singular integral equations of the plane theory of elasticity under stresses given on the boundary. (Russian. Armenian summary) **85f:73019**

- Ziyayev, M. Equilibrium of an elastic wedge when on one section of the boundary tangential stresses and normal displacements are given, on another displacements, and the remainder is free. (Russian. Tajiki summary) **85k:73013a**

Equilibrium of an elastic wedge when on two sections of the boundary tangential stresses are given, while on the remaining section displacements are given. (Russian. Tajiki summary) **85k:73013b**

## secondary classifications (73C02)

- Chirijă, S. On the deformation of almost cylindrical beams. **85i:73018**
- Iosif'yan, G. A. See Oleinik, O. A.; et al., **85g:35022**
- Oleinik, O. A. (with Panasenko, G. P.; Iosif'yan, G. A.) Homogenization and asymptotic expansions for solutions of the elasticity system with rapidly oscillating periodic coefficients. **85g:35022**
- Panasenko, G. P. See Oleinik, O. A.; et al., **85g:35022**
- Sharafutdinov, V. A. A problem of integral geometry for tensor fields and the Saint-Venant equation. (Russian) **85g:53083**
- Sternberg, Eli On Saint-Venant torsion and the plane problem of elastostatics for multiply connected domains. **85b:73009**
- Strebkov, E. V. Alternate-triangular iteration scheme for a problem of elasticity theory in toroidal coordinates. (Russian) **85f:73004**

## 73C03 Complex variable techniques

- Abdow, M. A. See el-Sirafy, I. H., **85k:73014**
- (Fichera, Gaetano) See Hayman, W. K., **85m:73007a**
- (Ghisetti, Aldo) See Hayman, W. K., **85m:73007a**
- Goruk, E. N. See Kaloerov, S. A., **85a:73015**
- (Grioli, G.) See Hayman, W. K., **85m:73007a**
- Hayman, W. K. A conformal mapping problem arising in elasticity. (Italian summary) **85m:73007a**
- A conformal mapping problem arising in elasticity. II. **85m:73007b**
- Ide's, L. V. (with Solov'ev, Yu. I.) One form of the integral equations for the solution of three-dimensional axisymmetric problems of elasticity. **85c:73007**
- Kaloerov, S. A. (with Goruk, E. N.) Distribution of stresses in a plate with a crack and circular openings. (Russian) **85a:73015**
- el-Sirafy, I. H. (with Abdow, M. A.) First and second fundamental problems of infinite plate with a curvilinear hole. **85k:73014**
- Solov'ev, Yu. I. See Ide's, L. V., **85c:73007**

## secondary classifications (73C03)

- Amenzade, R. Yu. See Bagir-sade, F. M.; et al., **85k:73018**
- Andrianov, I. V. (with Koblik, S. G.) Calculation of an orthotropic strip with periodically repeated boundary conditions. (Russian. English summary) **85m:73014**
- Bagir-sade, F. M. (with Amenzade, R. Yu.; Nabiev, A. Yu.) On a plane problem of elasticity of an anisotropic multiply connected body. (Russian) **85k:73018**
- Kaloerov, S. A. Elasticity theory problem for a multiconnected anisotropic plate with holes and internal cracks. **85m:73012**
- Koblik, S. G. See Andrianov, I. V., **85m:73014**
- Nabiev, A. Yu. See Bagir-sade, F. M.; et al., **85k:73018**
- Obolashvili, E. I. Some boundary value problems of analytic functions and their applications in the theory of elasticity. (Russian. English and Georgian summaries) **85c:30073**
- Prońska, Anna M. See Prosnak, Włodzimierz J., **85c:30011**
- Prosnak, Włodzimierz J. (with Prońska, Anna M.) Conformal mapping of a multiply-connected domain onto a semi-infinite strip with slits. (Russian summary) **85c:30011**

## 73C05 Stress functions

- Cassia, Caterina Dimension of the space of eigensolutions in plane stress elastic problems. (Italian. English summary) **85c:73006**
- Maschke, H. Ein Spannungsfunktionstensor für den allgemeinen Fall der linearen inkompatiblen Elastizitätstheorie. [A stress function tensor for the general case of linear incompatible elasticity theory] **85m:73008**
- Mayes, P. J. D. End stress calculations on elastic cylinders. **85a:73016**
- Millar, Robert F. On the completeness of the Papkovitch potentials. **85c:73009**

## 73C10 Saint-Venant's principle

- Iosif'yan, G. A. See Oleinik, O. A., **85g:35022**
- Knowles, James K. An energy estimate for the biharmonic equation and its application to Saint-Venant's principle in plane elastostatics. **85c:73007**
- Muncaster, Robert G. Saint-Venant's problem for slender prisms. **85g:73006**
- Oleinik, O. A. (with Iosif'yan, G. A.) Asymptotic behavior of the solutions of a system of the theory of elasticity in an infinite domain with periodicity conditions in some of the variables. (Russian. English and Georgian summaries) **85g:73007**
- Orazov, M. B. Saint-Venant's principle for equations of steady oscillations of an elastic semicylinder. (Russian) **85b:73008**

## secondary classifications (73C10)

- Kondrat'ev, V. A. (with Oleinik, O. A.) Estimates for solutions of the Dirichlet problem for the biharmonic equation in a neighbourhood of an irregular boundary point and in a neighbourhood of infinity. Saint-Venant's principle. **85c:35031**
- Oleinik, O. A. See Kondrat'ev, V. A., **85c:35031**

## 73C15 Uniqueness theorems

- Borrelli, Alessandra** Uniqueness theorems for unbounded domains in elastic, thermoelastic and magnetoelastic solid dynamics. (Italian. English summary) **85k:73015**  
(with Patria, Maria Cristina) Uniqueness in the boundary value problems for the static equilibrium equations of a mixture of two elastic solids occupying an unbounded domain. **85a:73017**
- Knops, R. J.** (with Payne, L. E.) Some uniqueness and continuous dependence theorems for nonlinear elastodynamics in exterior domains. **85g:73008**
- Patria, Maria Cristina** See **Borrelli, Alessandra**, **85a:73017**
- Payne, L. E.** See **Knops, R. J.**, **85g:73008**
- Sternberg, Eli** On Saint-Venant torsion and the plane problem of elastostatics for multiply connected domains. **85h:73009**

## secondary classifications (73C15)

- Carbonaro, Bruno** (with Russo, Remigio) A uniqueness theorem for a linear hyperbolic partial differential system of the second order. **85k:35131**
- Erofeenko, V. T.** Spectral expansion of operators of symmetric differentiation and divergence. (Russian) **85i:53018**
- Iosif'yan, G. A.** See **Oleinik, O. A.**, **85g:73007**
- Knops, R. J.** (with Stuart, Charles) Quasiconvexity and uniqueness of equilibrium solutions in nonlinear elasticity. **85j:73012**
- Oleinik, O. A.** (with Iosif'yan, G. A.) Asymptotic behavior of the solutions of a system of the theory of elasticity in an infinite domain with periodicity conditions in some of the variables. (Russian. English and Georgian summaries) **85g:73007**
- Russo, Remigio** See **Carbonaro, Bruno**, **85k:35131**
- Stuart, Charles** See **Knops, R. J.**, **85j:73012**

## 73C20 Strain energy methods

- Brun, Louis** (with Potier-Ferry, Michel) Constitutive inequalities and dynamic stability in the linear theories of elasticity and thermoelasticity. **85k:73016**
- Iégan, D.** On the first strain-gradient theory of elastodynamics. **85c:73008**
- Potier-Ferry, Michel** See **Brun, Louis**, **85k:73016**

## 73C25 Thermal stress problems

- Barber, J. R.** See **Gladwell, G. M. L.**; et al., **85d:73004** and **85d:73005**
- Belan, L. K.** (with Zagorskii, T. Ya.; Sotnikov, D. I.) Correct formulation of the Cauchy problem for a system of equations of thermoelasticity. (Russian) **85k:73017**
- Bermúdez de Castro López, A.** (with Viaño, J. M.) Une justification des équations de la thermoélasticité des poutres à section variable par des méthodes asymptotiques. (English summary) [A justification of thermoelastic equations for variable-section beams by asymptotic methods] **85m:73009**
- Carlson, Donald E.** See **Murphy, Wayne K.**, **85c:73009**
- Chou, S. I.** (with Wang, Chao Chen) Estimates of error in finite element approximate solutions to problems in linear thermoelasticity. II. Computationally uncoupled numerical schemes. **85h:73010**
- Gladwell, G. M. L.** (with Barber, J. R.; Olesiak, Z.) Thermal problems with radiation boundary conditions. **85d:73004**  
(with Barber, J. R.) Thermoelastic contact problems with radiation boundary conditions. **85d:73005**
- Iégan, D.** Thermoelasticity of nonsimple materials. **85a:73018**
- Ignaczak, Józef** Thermoelastic polynomials. **85a:73019**
- Leis, R.** Anfangs-Randwertaufgaben in der Theorie thermoelastischer Schwingungen. [Initial-boundary value problems in the theory of thermoelastic oscillations] **85g:73009**
- Murphy, Wayne K.** (with Carlson, Donald E.) On the characterization of the mixed problem of coupled, dynamic, linear thermoelasticity in terms of the temperature. **85c:73009**
- Olesiak, Z.** See **Gladwell, G. M. L.**; et al., **85d:73004**
- Sánchez-Palencia, E.** Perturbation of eigenvalues in thermoelasticity and vibration of systems with concentrated masses. **85m:73010**
- Sotnikov, D. I.** See **Belan, L. K.**; et al., **85k:73017**
- Vasil'kovskii, S. N.** A uniqueness theorem for the solution of the equations of the dynamics of coupled thermoelasticity in stresses. (Russian) **85m:73011**
- Viaño, J. M.** See **Bermúdez de Castro López, A.**, **85m:73009**
- Wang, Chao Chen** See **Chou, S. I.**, **85h:73010**
- Zagorskii, T. Ya.** See **Belan, L. K.**; et al., **85k:73017**

## secondary classifications (73C25)

- Bem, Zbigniew** Existence of a generalized solution in thermoelasticity with two relaxation times. II. **85c:73074**
- Brun, Louis** (with Potier-Ferry, Michel) Constitutive inequalities and dynamic stability in the linear theories of elasticity and thermoelasticity. **85k:73016**
- Clements, David L.** (with Hill, D. L.; Rogers, Colin; Masumdar, J.) On some boundary value problems in anisotropic inhomogeneous thermostatics and elastostatics. **85h:73011**
- Hill, D. L.** See **Clements, David L.**; et al., **85h:73011**
- Masumdar, J.** See **Clements, David L.**; et al., **85h:73011**
- Natroskhvili, D. G.** Dynamic problems of thermoelasticity for anisotropic homogeneous media. (Russian) **85a:73094**
- Navarro, C. B.** (with Quintanilla, R.) On existence and uniqueness in incremental thermoelasticity. (French summary) **85m:73043**
- Potier-Ferry, Michel** See **Brun, Louis**, **85k:73016**
- Quintanilla, R.** See **Navarro, C. B.**, **85m:73043**
- Rogers, Colin** See **Clements, David L.**; et al., **85h:73011**
- Ruggieri, Tommaso** Generators of hyperbolic heat equation in nonlinear thermoelasticity. **85c:73006**

## 73C30 Anisotropic bodies

- Amensade, R. Yu.** See **Bagir-zade, F. M.**; et al., **85k:73018**
- Bagir-zade, F. M.** (with Amensade, R. Yu.; Nabiev, A. Yu.) On a plane problem of elasticity of an anisotropic multiply connected body. (Russian) **85k:73018**
- Bashelashvili, M. O.** A new variant of the solution of the third and fourth plane boundary value problems of the statics of an anisotropic elastic body. (Russian. English and Georgian summaries) **85f:73030**
- Bitsadze, L. P.** Fundamental boundary value problems for an infinite transversally isotropic layer. (Russian. English and Georgian summaries) **85f:73021**  
Fundamental boundary-contact problems for a composite transversally isotropic plate. (Russian. English and Georgian summaries) **85f:73022**
- Bogan, Yu. A.** A singularly perturbed boundary value problem in the plane theory of elasticity. (Russian) **85k:73019**
- Clements, David L.** (with Hill, D. L.; Rogers, Colin; Masumdar, J.) On some boundary value problems in anisotropic inhomogeneous thermostatics and elastostatics. **85h:73011**
- Gorgidze, D. A.** Elastic equilibrium of a transtropic multilayer cylindrical coordinate parallelepiped. (Russian. English and Georgian summaries) **85a:73020**  
See also **Khomasuridze, N. G.**, **85k:73020**
- Hill, D. L.** See **Clements, David L.**; et al., **85h:73011**
- Kaloerov, S. A.** Elasticity theory problem for a multiconnected anisotropic plate with holes and internal cracks. **85m:73012**
- Khilo, A. E.** See **Molothov, L. A.**, **85a:73021**
- Khomasuridze, N. G.** (with Gorgidze, D. A.) General solutions of equations of elastic equilibrium for transversely isotropic bodies in Cartesian, cylindrical and spherical coordinate systems. (Russian. English and Georgian summaries) **85k:73020**
- Masumdar, J.** See **Clements, David L.**; et al., **85h:73011**
- Molothov, L. A.** (with Khilo, A. E.) Effective media for periodic anisotropic systems. (Russian. English summary) **85a:73021**
- Nabiev, A. Yu.** See **Bagir-zade, F. M.**; et al., **85k:73018**
- Padula, M.** On the traction problem for linear elastostatics in exterior domains. **85f:73023**
- Pitteri, M.** Reconciliation of local and global symmetries of crystals. **85m:73013**
- Rogers, Colin** See **Clements, David L.**; et al., **85h:73011**
- Wojnar, Ryszard** Quasi-orthogonality of homogeneous solutions of linear elasticity for an orthotropic strip. (Polish. English and Russian summaries) **85j:73008**

## secondary classifications (73C30)

- Andrianov, I. V.** (with Koblik, S. G.) Calculation of an orthotropic strip with periodically repeated boundary conditions. (Russian. English summary) **85m:73014**
- Berlyand, L. V.** Averaging of equations of the linear theory of elasticity in domains with a fine-grained boundary. I. (Russian) **85g:73004**  
Averaging of equations of the linear theory of elasticity in domains with a coarse-grained boundary. II. (Russian) **85g:73005**
- Dassios, George** (with Grillakis, Manoussos) Equipartition of energy for anisotropic elastic waves. **85c:73016**
- Gilbert, R. P.** (with Hsiao, George C.; Schneider, Manfred) The two-dimensional, linear orthotropic plate. **85d:73015**  
(with Schneider, Manfred) A boundary-layer theory for the orthotropic plate. (German and Russian summaries) **85a:73055**
- Grillakis, Manoussos** See **Dassios, George**, **85c:73016**
- Hsiao, George C.** See **Gilbert, R. P.**; et al., **85d:73015**
- Koblik, S. G.** See **Andrianov, I. V.**, **85m:73014**
- Kostenko, V. G.** (with Veselov'ska, O. O.) Solution of a boundary value problem for an anisotropic rod. (Ukrainian. Russian summary) **85c:73037**
- Krysko, V. A.** (with Pavlov, S. P.) On the existence of a solution in problems of nonlinear vibrations of shallow shells with rotational inertia taken into account. (Russian) **85c:73050**
- Mikhailov, S. E.** (with Osokin, A. E.) Construction of a fundamental solution for an anisotropic aging medium of hereditary type. (Russian) **85h:73022**
- Morosov, N. F.** (with Paukshto, M. V.) Discrete models of two-dimensional elasticity theory. (Russian. Armenian summary) **85b:73002**
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- Mani, J.** Mixed contact problems in plane elasticity. (German and Russian summaries) 85c:73072
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- Haddow, J. B.** See Singh, B. M.; et al., 85a:73079
- Moodie, T. B.** See Singh, B. M.; et al., 85a:73079
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- Hanyga, Andrzej** (with Seredyńska, Małgorzata) The complementary energy principle of nonlinear elasticity. 85g:73010
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- Olver, Peter** Conservation laws in elasticity. I. General results. 85i:73010a
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- Kupershmidt, B. A.** See Holm, Darryl D., 85e:58045
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- Balnov, D. D.** See Angelov, V. G., 85j:45020
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Szemplinska-Stupnicka, W. "Nonlinear normal modes" and the generalized Ritz method in the problems of vibrations of nonlinear elastic continuous systems. (French and German summaries) **85a:73037**

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- Mühlin, Peter Methode der Spektraltransformation. [Method of spectral transformation] (Not in MR)

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- Rose, James H. Exterior reconstruction of a three-dimensional scatterer. 85a:73038
- Tobias, T. The inverse problem of determination of the kernel of a hereditary medium. (Russian. English and Estonian summaries) 85f:73036

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- Bukhgeim, A. L. (with Kardakov, V. B.) Solution of an inverse problem for an equation of elastic waves. The finite-dimensional case. (Russian) 85k:35227
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- Yakhno, V. G. The linearized multidimensional inverse Lamb problem. (Russian) 85k:35223
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### 73D70 Random waves

- Lenoch, B. Comparison of averaging methods for scalar wave propagation in a random elastic layer. 85b:73010

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- Feng, De Xing (with Zhu, Guang Tian) Spectral characteristics of principal operators in a class of elastic vibration problems. (Chinese) (Not in MR)
- Kucherenko, V. V. (with Popov, V. A.) Asymptotic behavior of the solutions of problems of elasticity theory in thin regions. (Russian) 85c:73017
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- Temam, Roger ★Problèmes mathématiques en plasticité. (French) [Mathematical problems in plasticity] 85k:73031

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- Frémond, M. Conditions unilatérales et non linéarité en calcul à la rupture. (English and Portuguese summaries) [Unilateral conditions and nonlinearity in yield design] 85c:73019
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- Koshelev, A. I. The weighted Korn inequality and some iteration processes for quasilinear elliptic systems. (Russian) 85c:35060

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- Hill, Rodney On a symbolic algebra for Hencky-Prandtl nets. 85c:73021

### 73E20 Limit analysis

- Cyras, A. A. ★Mathematical models for the analysis and optimisation of elastoplastic structures. 85f:73039
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- Tobias, T. The inverse problem of determination of the kernel of a hereditary medium. (Russian. English and Estonian summaries) 85f:73036

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- Mosharovskii, V. V. On the determination of the stress-deformed state of an elastic and viscoelastic band. (Russian. English summary) 85g:73015

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- Arutyunyan, N. Kh. (with Drozdov, A. D.) On the theory of stability of viscoelastic bodies under finite deformations. (Russian) 85g:73016
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- Antman, Stuart S. Geometrical and analytical questions in nonlinear elasticity. 85m:73016  
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- Le Tallec, Patrick (with Vidrascu, M.) Une méthode numérique pour les problèmes d'équilibre de corps hyperélastiques compressibles en grandes déformations. (English summary) [A numerical method for solving equilibrium problems of compressible hyperelastic bodies in large deformations] 85d:65061  
 Vidrascu, M. See Le Tallec, Patrick, 85d:65061

## 73G99 None of the above, but in this section

- Grigolyuk, È. I. (with Shalashilin, V. I.) Modified forms of a method of continuation of a solution by parameter in nonlinear problems of the mechanics of a solid deformable body. (Russian) 85d:73014  
 Grioli, G. Mathematical problems in elastic equilibrium with finite deformations. (Not in MR)  
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- Zheng, Quan Shui Extended variational principle in nonlinear theory of elasticity. 85k:49094

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- Antman, Stuart S. Large lateral buckling of nonlinearly elastic beams. 85b:73024  
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- Cheng, Chang Jun (with Zhu, Zheng You) Buckled state of an elastic slender rod with an internal constraint. (Chinese. English summary) **85k:73049**
- Dost, Sadik (with Tabbarok, B.) Some variational formulations for buckling analysis of circular cylinders. **85b:73014**
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- Holder, E. J. (with Schaeffer, David G.) Boundary conditions and mode jumping in the von Kármán equations. **85m:73029**
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- Shifrin, E. I. Estimates of the solution of the problem of a flat crack of normal rupture in a material with power reinforcement. (Russian. English and Armenian summaries) 85i:73029

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- Arutyunyan, N. Kh. (with Nazarov, S. A.; Sholkhet, B. A.) Asymptotic behavior of the solution of problems of creep theory for inhomogeneously aging bodies with a two-dimensional crack. (Russian. English and Armenian summaries) 85d:73013
- Nazarov, S. A. See Arutyunyan, N. Kh.; et al., 85d:73013
- Rafaleki, Pawel Extremum principles for the energy-release problem of elastic-perfectly plastic body subjected to prescribed change of material properties. 85a:73042
- Sholkhet, B. A. See Arutyunyan, N. Kh.; et al., 85d:73013

## 73Nxx Geophysical solid mechanics [See also 86-XX.]

## 73N10 Earthquake problems

- Gu, Ji Cheng (with Li, Shuang) The far-field displacements radiated from a circular dislocation expanding with uniformly varying velocity. II. (Chinese. English summary) 85c:73064
- Li, Shuang See Gu, Ji Cheng, 85c:73064

## 73N99 None of the above, but in this section

- Kondaurov, V. I. (with Nikitin, L. V.) Propagation of nonlinear seismic waves in media with elasticity, viscosity and plasticity properties. (Russian) 85k:73088
- Nikitin, L. V. See Kondaurov, V. I., 85k:73088
- Sadiku, J. S. The periodic and eigen solutions of the equation governing a nonrotating viscoelastic earth model under transient force. 85c:73065
- Zinchenko, Zh. F. On the directed seismic radiation from cylindrical cavities. (Russian) 85c:73066

## 73Pxx Biomechanics of solids

## 73P05 Mathematical models of biological materials

- Holmes, Mark H. A nonlinear diffusion equation arising in the study of soft tissue. 85a:73081

## secondary classifications (73P05)

- Chakravarty, Santabrata See Misra, J. C., 85k:92016
- Misra, J. C. (with Chakravarty, Santabrata) A poroelastic spheroidal shell model for studying the problem of head injury. 85k:92016

## 73P10 Mechanics response

## secondary classifications (73P10)

- Demiray, Hilmi Electromechanical remodelling of bones. 85a:92009
- Misra, J. C. (with Samanta, S. C.) Propagation of torsional waves in tubular bones. 85h:92012
- Samanta, S. C. See Misra, J. C., 85h:92012

## 73Q05 Soil mechanics

- Burdo, O. S. (with Gorin, V. V.; Dargeiko, M. M.) Investigation of the effect of surface irregularities on the propagation of normal waves in an acoustic channel. (Russian) 85h:73047
- Dargeiko, M. M. See Burdo, O. S.; et al., 85h:73047
- Gorin, V. V. See Burdo, O. S.; et al., 85h:73047
- Shlafman, Sh. M. A class of physically nonlinear problems of soil mechanics. (Russian) 85g:73037
- Votynakov, I. F. The problem of nonlinear consolidation of a soil mass. (Russian. English summary) 85f:73083
- Zenisek, Alexander The existence and uniqueness theorem in Biot's consolidation theory. (Russian and Czech summaries) 85k:73089
- Finite element methods for coupled thermoelasticity and coupled consolidation of clay. (French summary) 85k:73084

## 73R05 Electromagnetic elasticity

- Bortone, C. A variational formulation for the equilibrium of a system of homogeneous dielectrics at contact. (Italian summary) 85f:73084
- (with Pellicciardi, G.) Signorini's method for isotropic elastic dielectrics. 85b:73039
- Collet, Bernard On the behavior of shock waves in deformable dielectric materials. 85a:73082
- Shock waves in deformable ferroelectric materials. 85e:73056
- Dost, Sadik (with Epstein, Marcelo; Göde, Sedat) Propagation of acceleration waves in generalized thermoelastic dielectrics. 85e:73057
- Epstein, Marcelo See Dost, Sadik; et al., 85e:73057
- Eringen, A. Cemal Theory of nonlocal piezoelectricity. 85c:73067
- Esposito, Raffaele (with Starita, Giulio) Boundary value problem of charge for the equilibrium of a nonlinear elastic dielectric. (Italian) 85c:73068
- Farat, Karol Electromagnetic field near a tip of a propagating crack in a dispersive dielectric. (Russian summary) 85b:73040
- Göde, Sedat See Dost, Sadik; et al., 85e:73057
- Green, A. E. (with Naghdi, P. M.) Electromagnetic effects in an elastic circular cylindrical waveguide. 85h:73048
- (with Naghdi, P. M.) Aspects of the second law of thermodynamics in the presence of electromagnetic effects. 85b:73041
- Kurlandzka, Zofia T. Stress intensity coefficients in elastic dielectric. I. Equations and the first method of determination. (Russian summary) 85g:73038a
- Stress intensity coefficients in elastic dielectric. II. Formulation of the second method of determination. (Russian summary) 85g:73038b



- Matsumoto, Eiji Reflection and transmission of weak discontinuity waves in electromagnetoelectric materials. 85c:73058
- McCarthy, Matthew F. Nonlinear wave propagation in electroelastic semiconductors. 85c:73059
- Mikala, Michael J. Effective dielectric constant of a nonlinear composite material. 85a:73083
- Naghdi, P. M. See Green, A. E., 85b:73041 and 85b:73048
- Pellicciardi, G. See Bortone, C., 85b:73039
- Starita, Giulio See Esposito, Raffaele, 85c:73068

## secondary classifications (73R05)

- Borrelli, Alessandra Uniqueness theorems for unbounded domains in elastic, thermoelastic and magnetoelastic solid dynamics. (Italian. English summary) 85c:73015
- Lavrinenko, N. M. (with Peletninskii, S. V.; Slyusarenko, Yu. V.) On the theory of systems with spontaneously broken translation and spin symmetries. (Russian. English summary) 85f:82042
- Morro, A. Evolution equations for dissipative bodies and hyperbolicity. 85b:70027
- Peletninskii, S. V. See Lavrinenko, N. M.; et al., 85f:82042
- Slyusarenko, Yu. V. See Lavrinenko, N. M.; et al., 85f:82042
- Stanomir, D. Hyperbolic systems power conservation law for harmonic time variation. 85c:35136

## 73Sxx Micromechanics of solids

## 73S05 Dislocation theory

- Buganenko, S. E. Structure of tensor fields of the second rank generated by an incompatibility operator. 85b:73042
- Kadić, Aida Materials with dislocations and disclinations. (German and Serbo-Croatian summaries) 85b:73049
- Kléman, M. Geometrical aspects in the physics of defects. 85b:73050
- Kondo, Kasuo Fundamentals of the theory of yielding elementary and more intrinsic expositions: Riemannian and non-Riemannian terminology. 85c:73060
- Markenscoff, Xanthippi On the dislocation fields in terms of the dynamic Green's function. 85c:73069
- Rvachev, M. A. Discontinuous displacements in a continuous elastic space. (Russian. English summary) 85a:73084

## secondary classifications (73S05)

- Beju, I. (with Soós, E.; Teodorescu, P. P.) ★ Spinor and non-Euclidean tensor calculus with applications. 85f:53001b
- Cohen, Harley (with Epstein, Marcelo) Remarks on uniformity in hyperelastic materials. 85a:73006
- Epstein, Marcelo See Cohen, Harley, 85a:73006
- Mistura, L. The free energy of a crystal with a continuous distribution of dislocations. 85c:82061
- (Samuel, Joseph) See Beju, I.; et al., 85f:53001b
- Soós, E. See Beju, I.; et al., 85f:53001b
- Teodorescu, P. P. See Beju, I.; et al., 85f:53001b

## 73S99 Other micromechanics

- Capriz, G. Continua with microstructures. (Italian) 85c:73039
- Günther, H. On the physical origin for the geometric theory of continuum mechanics. (German summary) 85j:73021
- Remark on groups and internal structure in continuum mechanics. (German summary) 85j:73022
- Havner, K. S. First- and second-order analysis of axially loaded crystals in  $n$ -fold symmetry. 85c:73090
- Kunin, Isaak A. ★ Elastic media with microstructure. II. 85d:73030
- Lyakhovskii, V. A. (with Myasnikov, V. P.) The behavior of an elastic medium with microflaws. (Russian) 85c:73091
- Mohn, I. (with Rehm, M.) Ein Beitrag zur parametrischen und meßtechnischen Erfassung von rauen Oberflächen. [A contribution to the parametric and measure-technical analysis of rough surfaces] 85b:73043
- Myasnikov, V. P. See Lyakhovskii, V. A., 85c:73091
- Rehm, M. See Mohn, I., 85b:73043
- Sellers, Howard Shaun A twinning study. 85c:73070

## secondary classifications (73S99)

- Cox, B. N. See Pardee, W. J.; et al., 85a:73080
- Morris, W. L. See Pardee, W. J.; et al., 85a:73080
- Nguetaeng, Gabriel Un problème raide intervenant en mécanique des mélanges. (English summary) [A stiff problem appearing in mechanics of mixtures] 85c:73052a
- (with Sánchez-Palencia, E.) On the asymptotics of the vibration problem for a solid-fluid mixture. (French summary) 85c:73052b
- Pardee, W. J. (with Morris, W. L.; Cox, B. N.) Microscopic origins of stochastic crack growth. 85a:73080
- Sánchez-Palencia, E. See Nguetaeng, Gabriel, 85c:73052b

## 73T05 Contact problems

- Alduncin, Gonzalo (with Herrera, Ismael) Solution of free boundary problems using  $C$ -complete systems. 85d:73031
- Aleksandrov, V. M. (with Kovalenko, E. V.; Mkhitarian, S. M.) On a method of obtaining spectral relationships for integral operators of mixed problems of mechanics of continuous media. 85c:73061
- (with Mkhitarian, S. M.) ★ Контактные задачи для тел с тонкими покрытиями и прослойками. (Russian) [Contact problems for bodies with thin coverings and layers] 85i:73030

- Anan'ev, I. V. Asymptotic behavior of the kernel of the internal equation of the dynamic contact problem for media with properties that vary with depth. (Not in MR)
- Babich, S. Yu. See Gurs', A. N., 85c:73086
- Bardokas, Dem. See Theocaris, P. S., 85a:73087
- Bashelishvili, M. O. (with Tsagareli, I. I.) Solution of certain contact problems of statics for a ball. (Russian. English and Georgian summaries) 85f:73085
- Bogomolny, A. Variational formulation of the roller contact problem. 85c:73063
- Borodich, F. M. Similarity in the problem of contact between elastic bodies. 85b:73051
- Comninou, M. See Dundurs, J., 85c:73071
- Cui, Jun Zhi (with Liang, Fu Gang; Huang, Yu Xia; Shi, Guang Jue) The solution and solving method of the elastic contact problem with initial gaps. (See 85g:65010)
- Dundurs, J. (with Comninou, M.) An educational elasticity problem with friction. III. General load paths. 85c:73071
- Dzhagmalidze, A. Ya. See Natroshvili, D. G., 85f:73087
- Fedorenko, R. P. See Gol'dshtein, R. V.; et al., 85g:73040
- Gaanov, A. I. Properties of normal stresses and displacements near a perturbed boundary of the contact zone. (Russian) 85a:73085
- Gol'dshtein, R. V. (with Zazovskii, A. F.; Spector, A. A.; Fedorenko, R. P.) Solution by variational methods of three-dimensional contact rolling problems with slip and adhesion. (Russian. English summary) 85g:73040
- Gurs', A. N. (with Babich, S. Yu.) An axially symmetric contact problem for an elastic layer with initial stresses. (Russian) 85f:73086
- Herrera, Ismael See Alduncin, Gonzalo, 85d:73031
- Hiremath, Ku. Uma See Kumar, M., 85b:73052
- Hlaváček, Ivan See Netas, Jindřich, 85f:73088
- Huang, Yu Xia See Cui, Jun Zhi; et al., (85g:65010)
- Jentsch, Lothar Über einige neuere Probleme der Elastizitätstheorie stückweise homogener Körper. (English summary) [On some new problems in the elasticity of piecewise homogeneous solids] 85d:73032
- Kačur, Josef On variational inequalities for generalized Kármán equations. 85c:73083
- Katamashvili, R. G. Investigation of a class of boundary-contact problems of elasticity theory. (Russian) 85g:73041
- Khludnev, A. M. Problem on the contact of two elastic plates. 85b:73044
- Kovalenko, E. V. See Aleksandrov, V. M.; et al., 85c:73061
- Kumar, M. (with Hiremath, Ku. Uma) The axisymmetric Boussinesq problem for a heated annular punch. 85b:73052
- Liang, Fu Gang See Cui, Jun Zhi; et al., (85g:65010)
- Licht, Christian Un problème d'élasticité avec frottement visqueux non linéaire. (English summary) [An elasticity problem with nonlinear viscous friction] 85b:73053
- Maul, J. Mixed contact problems in plane elasticity. (German and Russian summaries) 85c:73072
- Mkhitarian, S. M. On certain spectral relationships associated with the Carleman integral equation and their applications to contact problems. 85k:73092
- See also Aleksandrov, V. M.; et al., 85c:73061 and 85i:73030
- Mkhitarian, V. G. An orthogonal integral relation and its application to contact problems of elasticity theory. (Russian. Armenian summary) 85d:73033
- Natroshvili, D. G. (with Dzhagmalidze, A. Ya.) Boundary-contact problems of statics of the moment theory of elasticity. (Russian. English and Georgian summaries) 85f:73087
- Netas, Jindřich (with Hlaváček, Ivan) Solution of Signorini's contact problem in the deformation theory of plasticity by scant modules method. (Russian and Czech summaries) 85f:73088
- Oden, J. T. See Pires, E. B., 85a:73086
- Pires, E. B. (with Oden, J. T.) Analysis of contact problems with friction under oscillating loads. 85a:73086
- Shi, Guang Jue See Cui, Jun Zhi; et al., (85g:65010)
- Spector, A. A. See Gol'dshtein, R. V.; et al., 85g:73040
- Sveiko, V. A. The axisymmetric contact problem in the presence of a wedge. 85b:73045
- Theocaris, P. S. (with Bardokas, Dem.) The frictionless contact of cracked elastic bodies. (German and Russian summaries) 85a:73087
- Tsagareli, I. I. See Bashelishvili, M. O., 85f:73085
- Volkov, A. P. Efficient method of solving the problem of stamp pressure on an elastic half-space. 85a:73088
- Pressure of a system of stamps onto a nonhomogeneous elastic half space. 85k:73093
- Zazovskii, A. F. See Gol'dshtein, R. V.; et al., 85g:73040
- Zelentsov, V. B. On the solution of a class of integral equations. 85c:73073

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- Alduncin, Gonzalo (with Herrera, Ismael) Contribution to free boundary problems using boundary elements: Trefftz approach. 85d:73018
- Clarlet, Philippe G. (with Netas, Jindřich) Problèmes unilatéraux en élasticité non linéaire tridimensionnelle. (English summary) [Unilateral problems in nonlinear three-dimensional elasticity] 85i:73009
- Comninou, M. Frictional slip and separation in the transonic range caused by a plane stress pulse. 85b:73016
- Gol'dshtein, R. V. (with Spector, A. A.) Variational method of investigation of three-dimensional mixed problems of a plane cut in an elastic medium in the presence of slip and adhesion of its surfaces. 85c:73053
- Hartwig, Karl-Heinz Differenzennäherung von elliptischen Variationsungleichungen mit Beschränkungen im Gebiet und auf dem Rand. [Finite difference approximation of elliptic variational inequalities with constraints in the domain and on the boundary] 85d:49067
- Herrera, Ismael See Alduncin, Gonzalo, 85d:73018
- L'vov, G. I. Variational formulation of a contact problem for linearly elastic and physically nonlinear shallow shells. 85c:73052
- Netas, Jindřich See Clarlet, Philippe G., 85i:73009

- Noor, Muhammad Aalam Finite element analysis of a class of contact problems. 85h:49079
- Panagiotopoulos, P. D. Optimal control and parameter identification of structures with convex or nonconvex strain energy density. Applications to elastoplasticity and to contact problems. 85c:73023
- Hemivariationsungleichungen. [Semivariational inequalities] 85m:49016
- Spector, A. A. See Gol'dstein, R. V., 85c:73053
- Wanka, J. Lösung von Kontaktaufgaben bei parabolischen Randanfangswertproblemen. (English and Russian summaries) [Solution of contact problems in connection with parabolic initial-boundary value problems] 85j:35106

### 73U05 Thermomechanics of solids [See also 73B30.]

- Barber, J. R. See Martin-Moran, C. J.; et al., 85a:73093
- Bem, Zhigalov Existence of a generalized solution in thermoelasticity with two relaxation times. II. 85c:73074
- Bourgeat, Alain (with Tapiéro, Roland) Homogénéisation d'une plaque mince, thermoélastique, perforée transversalement, de structure non uniformément périodique, dans le modèle de la théorie naturelle. (English summary) [Homogenization of a transversely perforated plate in the frame of Hencky Mindlin's theory, in the thermoelastic case with nonuniformly oscillating coefficients] 85c:73064
- Burchulada, T. V. Approximate solutions of certain three-dimensional problems of elastothermodynamics. (Russian. English and Georgian summaries) 85k:73094
- Three-dimensional dynamic problems of the nonclassical theory of elasticity. (Russian) 85i:73031
- Chernigovskii, S. V. Stability of difference schemes with weights for calculation of two-dimensional problems of nonstationary thermoelasticity. (Russian) 85d:73034
- Chiriță, S. Uniqueness and continuous dependence results for the incremental thermoelasticity. 85f:73009
- Uniqueness and continuous dependence results in thermodynamics with internal state variables. (Russian and Polish summaries) 85c:73075
- Clements, David L. (with Rogers, Colin) A boundary integral equation for the solution of a class of problems in anisotropic inhomogeneous thermostatics and elastostatics. 85a:73089
- Comninou, M. See Martin-Moran, C. J.; et al., 85a:73093
- Crăciun, A. See Crăciun, Ion Al., 85a:73090
- Crăciun, Ion Al. Boundary value problems in micropolar thermoelasticity. 85h:73054
- (with Crăciun, A.) Singular integral equations in micropolar thermoelasticity. 85a:73090
- Damlou, George (with Grillakis, Manoussos) Dissipation rates and partition of energy in thermoelasticity. 85i:73032
- Day, W. A. Further remarks on a property of the equations of dynamic thermoelasticity. 85c:73055
- On a qualitative effect arising from coupling in dynamic linear thermoelasticity. 85c:73056
- Mean and recurrence properties of the temperature in dynamic thermoelasticity. 85a:73091
- A comment on approximations to the temperature in dynamic linear thermoelasticity. 85f:73090
- On the failure of the maximum principle in coupled thermoelasticity. 85f:73091
- Gawinecki, Jerzy Existence and uniqueness of the solution of the third boundary-initial value problem for thermal stresses equations of classical and generalized thermomechanics. (Russian summary) 85b:73046
- Grillakis, Manoussos See Damlou, George, 85i:73032
- James, R. D. A relation between the jump in temperature across a propagating phase boundary and the stability of solid phases. 85a:73092
- Stress-free joints and polycrystals. 85i:73033
- Karnaukhov, V. G. ★ Связанные задачи термовязкоупругости. (Russian) [Coupled problems of thermoviscoelasticity] 85f:73092
- Kirichenko, V. F. (with Kryz'ko, V. A.) The existence of a solution to a nonlinear connected problem of thermoelasticity. (Russian) 85f:73095
- Kowalski, Tadeusz (with Litewka, Katarzyna; Piskorek, Adam) Uniqueness and regularity of the solution of the first initial-boundary value problem in linear thermoelasticity. (Russian summary) 85f:73093
- Kryz'ko, V. A. See Kirichenko, V. F., 85f:73095
- Litewka, Katarzyna See Kowalski, Tadeusz; et al., 85f:73093
- Martin-Moran, C. J. (with Barber, J. R.; Comninou, M.) The penny-shaped interface crack with heat flow. I. Perfect contact. 85a:73093
- Meladze, R. V. Solution of the third and fourth plane boundary value problems of steady oscillations of the moment theory of thermoelasticity. (Russian. English and Georgian summaries) 85f:73094
- Mitunović, Milan Stability of a finite thermoelastic deformation of a fiber-reinforced massive slab. (Serbo-Croatian. English summary) 85m:73042
- Natanson, D. G. Dynamic problems of thermoelasticity for anisotropic homogeneous media. (Russian) 85a:73094
- Navarro, C. B. (with Quintanilla, R.) On existence and uniqueness in incremental thermoelasticity. (French summary) 85m:73043
- Pankov, A. A. The quasi-inversion method in problems of thermoelasticity. (Russian) 85k:73096
- Papa, Gelsi L. A convergence theorem for a periodic media with thermoelastic properties. 85c:73076
- Piskorek, Adam See Kowalski, Tadeusz; et al., 85f:73093
- Quintanilla, R. See Navarro, C. B., 85m:73043
- Ravrik, M. S. See Shvets, R. N., 85a:73095
- Rogers, Colin See Clements, David L., 85a:73090
- Ruggeri, Tommaso Generators of hyperbolic heat equation in nonlinear thermoelasticity. 85c:73066
- Shvets, R. N. (with Ravrik, M. S.) Variational equations of the thermomodification of deformable thin shells with a finite shear stiffness. 85a:73095

- Sládek, J. (with Sládek, V.) Boundary integral equation method in thermoelasticity. II. Crack analysis. 85g:73042
- Sládek, V. See Sládek, J., 85g:73042
- Sloderbach, Z. Generalized coupled thermoelasticity. I. Fundamental equations and identities. (Russian and Polish summaries) 85h:73055a
- Generalized coupled thermoelasticity. II. On the uniqueness and bifurcation criteria. (Russian and Polish summaries) 85h:73055b
- Tapiéro, Roland See Bourgeat, Alain, 85c:73064
- Thermann, Klaus Foundations of large deformations. (See 85j:73001)
- Weinitschke, H. J. An integro-differential equation arising in thermo-viscoelasticity. 85f:73095

### secondary classifications (73U05)

- Barber, J. R. See Gladwell, G. M. L.; et al., 85d:73004 and 85d:73005
- Batra, Romesh C. See Passman, Stephen L., 85h:80005
- Bermúdez de Castro López, A. (with Viaño, J. M.) Étude de deux schémas numériques pour les équations de la thermoélasticité. (English summary) [Study of two numerical schemes for the equations of thermoelasticity] 85c:85045
- (with Viaño, J. M.) Une justification des équations de la thermoélasticité des poutres à section variable par des méthodes asymptotiques. (English summary) [A justification of thermoelastic equations for variable-section beams by asymptotic methods] 85m:73009
- Bernstein, Barry A unified thermodynamic theory of elasticity and plasticity. 85f:73008
- Chou, S. I. (with Wang, Chao Chen) Estimates of error in finite element approximate solutions to problems in linear thermoelasticity. II. Computationally uncoupled numerical schemes. 85h:73010
- Dysalewicz, Janusz Selected boundary value problems of micropolar elasticity. (French, Russian and Polish summaries) 85m:73002
- Gladwell, G. M. L. (with Barber, J. R.; Olesiak, Z.) Thermal problems with radiation boundary conditions. 85d:73004
- (with Barber, J. R.) Thermoelastic contact problems with radiation boundary conditions. 85d:73005
- Hiremath, Ku. Uma See Kumar, M., 85h:73052
- Ivanović, L. D. Difference approximation and regularization of the maximin problem of heating of a rod. (Russian) 85g:85101
- Kim, Jong Uhn Global existence of solutions of the equations of one-dimensional thermoviscoelasticity with initial data in BV and  $L^1$ . 85k:35210
- Kumar, M. (with Hiremath, Ku. Uma) The axisymmetric Boussinesq problem for a heated annular punch. 85h:73052
- (Lehmann, Th.) See Constitutive law in thermoplasticity, 85j:73001
- Narukawa, Kimiaki Boundary value control of thermoelastic systems. 85c:93021
- Olesiak, Z. See Gladwell, G. M. L.; et al., 85d:73004
- Oyuke, Benjamin Existence of solutions for a system of equations of nonlinear elastic materials. 85d:73007
- Passman, Stephen L. (with Batra, Romesh C.) A thermomechanical theory for a porous anisotropic elastic solid with inclusions. 85h:80005
- da Silva Baptista, José Joaquim (with Venturi, Adriana) On an integro-differential equation arising from heat conduction in materials with memory. (Italian. English summary) 85m:45014
- Vasil'kovskii, S. N. A uniqueness theorem for the solution of the equations of the dynamics of coupled thermoelasticity in stresses. (Russian) 85h:73011
- Venturi, Adriana See da Silva Baptista, José Joaquim, 85m:45014
- Viaño, J. M. See Bermúdez de Castro López, A., 85c:85045 and 85m:73009
- Voroshko, P. P. Formulation of variational principles of Reissner type for classical problems of thermoelasticity. (Russian. English summary) 85b:73009
- Wang, Chao Chen See Chou, S. I., 85h:73010
- Zenišek, Alexander Finite element methods for coupled thermoelasticity and coupled consolidation of clay. (French summary) 85k:73004
- Ziegler, Hans ★ An introduction to thermomechanics. 85b:73005
- Constitutive law in thermoplasticity ★ The constitutive law in thermoplasticity. 85j:73001

### 76-XX FLUID MECHANICS (For general continuum mechanics, see 73Bxx, or other parts of 73-XX.)

#### secondary classifications (76-XX)

- Petrov, I. I. Identification of a hyperbolic system. (Bulgarian. English and Russian summaries) (Not in MR)
- 76-01 Elementary exposition; textbooks
- Paterson, A. R. ★ A first course in fluid dynamics. 85g:76001
- secondary classifications (76-01)
- Böhme, Gert ★ Strömungsmechanik nicht-newtonscher Fluide. (German) [Fluid mechanics for non-Newtonian fluids] 85c:76007
- 76-02 Advanced exposition (research surveys, monographs, etc.)
- Litvinov, V. G. ★ Движение нелинейно-вязкой жидкости. (Russian) [Motion of a nonlinearly viscous fluid] 85k:76001
- secondary classifications (76-02)
- Cattaneo, C. ★ Elementi di teoria della propagazione ondosa. (Italian) [Elements of the theory of wave propagation] 85f:76080
- Filonenko, N. N. See Zaslavskii, G. M.; et al., 85c:34001
- (Jeffrey, Alan) See Taniuti, Tosiya, 85f:76038
- Mei, V. P. See Zaslavskii, G. M.; et al., 85c:34001

Nishihara, Katsunobu *See* Taniuti, Toshiya, 85f:76038

(Pluchino, Salvatore) *See* Cattaneo, C., 85f:76080

Straughan, Brian ★ Instability, nonexistence and weighted energy methods in fluid dynamics and related theories. 85e:35002

Taniuti, Toshiya (with Nishihara, Katsunobu) ★ Nonlinear waves. 85f:76038

Zaslavskii, G. M. (with Meitlis, V. P.; Filonenko, N. N.) ★ Взаимодействие волн в неоднородных средах. (Russian) [Interaction of waves in inhomogeneous media] 85e:34001

76-03 Historical (must also be assigned at least one classification number from Section 01)

secondary classifications (76-03)

Chernyi, G. G. (with Kulikovskii, A. G.) Mechanics of fluids and gases. (Russian) (See 85g:01004)

Coburn, N. Wave propagation in nonviscous fluids. (See 85i:00007)

Kulikovskii, A. G. *See* Chernyi, G. G., (85g:01004)

(Liouville, J.) *See* Lötzen, Jesper, 85m:01033

Lötzen, Jesper Joseph Liouville's work on the figures of equilibrium of a rotating mass of fluid. 85m:01033

Lynashko, I. I. (with Oleinik, A. Ya.) Mathematical methods in filtration theory. (Russian) (See 85g:01004)

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- Vachenaer, Peter. The Rothe method with a singular perturbation technique for hyperbolic equations. 85k:65078
- Vajk, J. Peter. See Gellinas, Robert J.; et al., (85i:00014)
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- Voskresenskii, G. P. A numerical method of calculation of supersonic flow around aircraft wings. (Russian) 85f:76079
- Wang, Y. Z. (with Johnson, S. H.) Application of the pseudocharacteristic numerical method of lines. (See 85i:00014)
- Wheeler, Mary Fanett. See Potempa, Thom C., 85g:76026 and Ewing, Richard E., (85i:00014)
- Windisch, Günter. See Friedrich, V., 85m:76060
- Yuan, Yi Rang. Finite element scheme and theoretical analysis of numerical analog of two-phase immiscible flow. 85j:76042
- Yusupov, I. Yu. Optimization of numerical solutions of convective flows of a fluid. (Russian) 85e:76049
- Zhu, Jia Lin. A boundary integral equation method for the stationary Stokes problem in 3D. 85c:76031
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- Hampton, Va. ★ Spectral methods for partial differential equations. 85g:76003
- Spectral methods for partial differential equations ★ Spectral methods for partial differential equations. 85g:76003
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- Theoretical acoustics and numerical techniques ★ Theoretical acoustics and numerical techniques. 85f:76095

## 76Axx Foundations, constitutive equations, rheology [See also 35L65.]

## 76A02 Foundations

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- Esposito, Raffaele (with Romano, Antonio) Gibbs variational principles for the equilibrium of continuous systems with an interface. (Italian summary) 85m:70007
- Griffa, Annaliese Canonical transformations and variational principles for fluid dynamics. 85m:70008
- Romano, Antonio See Esposito, Raffaele, 85m:70007
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- Grmela, Miroslav Bracket formulation of dissipative fluid mechanics equations. 85f:50041
- Kozlov, V. V. Hydrodynamics of Hamiltonian systems. (Russian) 85c:58048
- Littlejohn, Robert G. Singular Poisson tensors. 85c:58039
- Mukser, P. Dimensional analysis and the problem of similarity. 85k:00018
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- Abd El-Rady, Ahmed Sefwat A problem of diffraction of waves on the curvature discontinuity point of a boundary curve. (Arabic summary) 85j:76035a
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- Chichinadze, R. K. Investigation of boundary value problems of the steady flow of a viscous incompressible micropolar fluid. (Russian. English and Georgian summaries) 85a:76022
- Boundary value problems for steady flow of a viscous incompressible micropolar fluid. (Russian) 85h:76011
- Chu, I Hsi (with Li, Wen Ch'ien) Effects of slip on Graetz problem of power law fluids with second kind boundary condition. (Chinese. English summary) 85f:76023
- Day, W. A. Approximations to the temperature in a heated thermoelastic fluid. 85m:70009
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- Huechilt, K. See Kaloni, P. N., 85f:76025
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- Kaloni, P. N. (with Huechilt, K.) Semi-inverse solutions of a non-Newtonian fluid. 85f:76025
- Lévy, Thérèse (with Sánchez-Palencia, E.) Suspension diluée dans un fluide visqueux de particules solides ou de gouttes visqueuses. (English summary) [Small concentration suspension of solid particles or viscous drops in a viscous fluid] 85a:76023
- Li, Wen Ch'ien See Chu, I Hsi, 85f:76023
- Litvinov, V. G. (with Shishkova, N. E.) Solvability of a nonstationary problem of nonisothermal motion of a nonlinearly viscous fluid under conditions of slippage along the wall of a channel. (Russian) 85j:76004
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- Na, T. Y. See Rajagopal, K. R.; et al., 85a:76024
- Rajagopal, K. R. (with Gupta, A. S.; Na, T. Y.) A note on the Falkner-Skan flows of a non-Newtonian fluid. (French and German summaries) 85a:76024
- (with Gupta, A. S.) An exact solution for the flow of a non-Newtonian fluid past an infinite porous plate. (Italian summary) 85k:76008
- Ramkisson, H. A uniqueness theorem on couple-stress theory of fluids. 85a:76025
- Renardy, Michael Local existence theorems for the first and second initial-boundary value problems for a weakly non-Newtonian fluid. 85c:76008
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- Straughan, Brian Energy stability in the Bénard problem for a fluid of second grade. (German summary) 85c:76009

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- Antontsev, S. N. (with Kazhikhov, A. V.; Monakhov, V. N.) ★ Красные задачи механики неоднородных жидкостей. (Russian) [Boundary value problems of the mechanics of inhomogeneous fluids] 85g:35097
- Bhattacharyya, Sankari Prasad (with Jena, S. K.) On the stability of a hot layer of micropolar fluid. 85b:76037
- Ferrari, Carlo On lubrication with structured fluids. 85i:76025
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- Wajuryb, E. The Boltzmann equation for the generalized Lorentz gas. 85c:82041
- Ziegler, Hans ★ An introduction to thermomechanics. 85b:73005

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- Goddard, J. D. The dynamics of simple fluids in steady circular shear. 85a:76026
- Joseph, Daniel D. See Narain, Amitabh, 85a:76027 and 85f:76036
- Narain, Amitabh (with Joseph, Daniel D.) Linearized dynamics of shearing deformation perturbing rest in viscoelastic materials. 85f:76026
- (with Joseph, Daniel D.) Corrigendum: "Linearized dynamics for step jumps of velocity and displacement of shearing flows of a simple fluid" [Rheol. Acta 21 (1982), no. 3, 228-250; MR 83j:76006]. 85a:76027
- Rajagopal, K. R. Boundedness and uniqueness of fluids of the differential type. 85m:76010
- (with Wineman, Alan) A class of exact solutions for the flow of a viscoelastic fluid. 85m:76011
- Renardy, Michael Initial value problems for viscoelastic liquids. 85j:70005
- Rivlin, R. S. Spin-up in Couette flow. 85a:76028
- Wineman, Alan See Rajagopal, K. R., 85m:76011

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- Adkhamov, A. A. (with Asoev, A.; Odinaev, S.) A molecular theory of the viscoelastic properties of liquids. (Russian) 85d:83077
- Asoev, A. See Adkhamov, A. A.; et al., 85d:83077
- Markowich, Peter A. (with Renardy, Michael) The numerical solution of a class of quasilinear parabolic Volterra equations arising in polymer rheology. 85h:65275
- Odinaev, S. See Adkhamov, A. A.; et al., 85d:83077
- Renardy, Michael See Markowich, Peter A., 85h:65275

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- Hansen, Erik B. (with McGeough, Joseph A.) On electropainting. 85d:90032
- Leray, Jean The meaning of W. H. Shih's result. 85g:35107b
- McGeough, Joseph A. See Hansen, Erik B., 85d:90032
- Ruggeri, Tommaso Symmetric-hyperbolic system of conservative equations for a viscous heat conducting fluid. 85d:76016
- Shih, Wei Hui On the Cauchy problem for the equation of a general fluid. 85g:35107a

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- Iacob, Caius Théorie de l'aile mince à squelette circulaire. [Theory of thin wings with circular skeletons] 85a:76029
- Nujescu-Mateescu, Carmen On the theory of the tandem double plane. (Romanian. French summary) 85c:76005
- Paaschivloiu, Ion Nouvelle approche pour le calcul des ailes subsoniques de grand allongement. [New approach to calculating subsonic airfoils with wide span] 85j:76006
- Spence, D. A. Some new results for the integro-differential equation of jet-flap theory. 85f:76027

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- Ioakimidis, N. I. A natural interpolation formula for Prandtl's singular integro-differential equation. 85b:65117
- Kekeliya, A. G. Reduction of integro-differential equations of an aircraft's rigid and elastic wings of finite span to ordinary singular equations. (Georgian. English and Russian summaries) 85f:73064
- Panchenkov, A. N. ★ Теория оптимальной несущей поверхности. (Russian) [The theory of an optimal supporting surface] 85i:49061
- Zobnin, A. I. Investigation of the initial stage of detached flow around a circular cylinder. (Russian) 85a:76042

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- Blake, J. R. See Cerone, P., 85f:76028
- Borisjuk, M. N. See Panchenkov, A. N., 85f:76029
- Cerone, P. (with Blake, J. R.) A note on the instantaneous streamlines, pathlines and pressure contours for a cavitation bubble near a boundary. 85f:76028
- Elisarov, A. M. Jet flow around a nonsmooth curvilinear obstacle. (Russian) 85i:76007
- Epikhov, G. P. A modification of the double sweep method for Saint-Venant equations with nonlinear interior boundary conditions. (Russian) 85c:76006
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- Greenhow, Martin Free-surface flows related to breaking waves. 85d:76007
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- Panchenkov, A. N. (with Borisjuk, M. N.) An optimal carrying surface with constant seaworthiness. (Russian) 85f:76029
- Rivas, D. (with Meseguer Ruiz, Jose) One-dimensional self-similar solution of the dynamics of axisymmetric slender liquid bridges. 85f:76030
- Vogel, Thomas I. See Friedman, Avner, 85k:76009
- van Wijngaarden, L. On the motion of gas bubbles in a perfect fluid. (Russian and Polish summaries) 85b:76008
- Wilks, Graham On the assimilation of a strong, two-dimensional laminar jet into an aligned uniform stream. 85m:76012

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- Amromin, E. L. (with Bushkovskii, V. A.) Application of linear programming to nonlinear problems with free boundaries for the Laplace equation. (Russian) 85a:65172
- Bushkovskii, V. A. See Amromin, E. L., 85a:65172
- Friedman, Avner Axially symmetric cavities in rotational flows. 85a:35026
- Goncharova, O. N. See Lavrent'ev, G. V., 85k:76031
- Lavrent'ev, G. V. (with Goncharova, O. N.) Determination of constants of Christoffel-Schwarz type in problems of hydrodynamics with free boundaries. (Russian) 85k:76031
- Li, Li On the stability of the rotational motion of a rigid body having a liquid filled cavity under finite initial disturbance. 85c:76042
- Yin, Wan Lee On the Earnshaw misconception. 85b:76016

# 76B15 Water waves, gravity waves; dispersion and diffraction, nonlinear interaction

- Akyildiz, Yilmaz The shallow water equations: explicit solutions and superposition principle. **85a:76030**
- Akylas, T. R. Large-scale modulations of edge waves. **85a:76031**  
On the excitation of nonlinear water waves by a moving pressure distribution oscillating at resonant frequency. **85m:76013**
- Athanassoulis, G. A. An expansion theorem for water-wave potentials. **85k:76010**
- Benmoussa, Chakib See Turpin, François-Marc; et al., **85c:76011**
- Bryant, P. J. Waves and wave groups in deep water. **85f:76031**  
Oblique wave groups in deep water. **85j:76007**
- Chen, Feng Su A Galerkin method to strongly nonlinear KdV equations and Schrödinger equations. **85f:76032**
- Chen, Si Xiong The added mass matrix of a partially submerged oscillating cylinder, and the radiative damping matrix. (Chinese) (Not in MR)
- Cramer, M. S. (with Watson, L. T.) The evolution of long-wave solutions to the nonlinear Schrödinger equation. **85b:76009**
- Debnath, Lokenath See Shivamoggi, Bhimsen K., **85i:76009**
- Finkel, Allan See Segur, Harvey; et al., **85f:76037**
- Garcia, F. R. (with Kahawita, R.) Numerical solution of the shallow water equations with a MacCormack type finite difference scheme. (See **85g:93006**)
- Goswami, S. K. See Mandal, Birendranath, **85f:76034** and **85i:76008**
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- Hulme, Andrew Some applications of Mas'ja's uniqueness theorem to a class of linear water wave problems. **85c:76007**
- Jeffrey, Alan The KdV equation in stratified fluid flow. **85a:76032**  
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- Johnson, R. S. The Korteweg-de Vries equation and related problems in water wave theory. **85j:76008**
- Jones, A. F. The generation of cross-waves in a long deep channel by parametric resonance. **85f:76033**
- Kahawita, R. See Garcia, F. R., (See **85g:93006**)
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- Liu, Shi Kuo (with Liu, Shi Da) Nonlinear waves in geophysical fluid. **85b:76011**
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- Mackie, A. G. A critique for shallow water theory. **85j:76009**
- Mandal, Birendranath (with Goswami, S. K.) The scattering of an obliquely incident surface wave by a submerged fixed vertical plate. **85f:76034**  
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- Meerson, B. I. See Vainberg, Yu. R.; et al., **85f:76039**
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- Miles, John Surface-wave diffraction by a periodic row of submerged ducts. **85a:76033**  
Nonlinear Faraday resonance. **85m:76015**
- Mitra, Anil (with Greenberg, M. D.) Slow interactions of gravity waves and a corrugated sea bed. **85c:76008**
- Nesterov, S. V. Natural frequencies of internal waves in a liquid with an arbitrary Brunt-Väisälä frequency. (Russian) **85d:76008**
- New, A. L. A class of elliptical free-surface flows. **85d:76009**
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- Nutku, Y. Canonical formulation of shallow water waves. **85f:76035**
- O'Carroll, M. J. See Toro, E. F., **85k:76013**
- Pellacani, C. (with Lupini, R.) Bifurcations of the modal structure of internal waves in a fluid induced by a spatially periodical variation of the hydrostatic stability parameter. **85g:76010**
- Peregrine, D. H. (with Ryrie, S. C.) Anomalous refraction and conjugate solutions of finite-amplitude water waves. **85c:76010**  
Wave jumps and caustics in the propagation of finite-amplitude water waves. **85c:76009**
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- Pierce, Allan D. Guided mode disappearance during upslope propagation in variable depth shallow water overlying a fluid bottom. **85k:76011**
- Plotnikov, P. I. Justification of the Stokes conjecture in the theory of surface waves. (Russian) **85f:76036**
- Remardy, Yuriko Weakly nonlinear interactions and wave trapping. **85a:76034**
- Resnik, G. M. On the energy transfer equation for weakly interacting waves. (French and German summaries) **85b:76013**
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- Sastry, M. S. K. See Wen, Shih Liang, **85c:76011**
- Segur, Harvey (with Finkel, Allan; Philander, Hilda; Hammack, J. L.) Some physical applications of solitons. **85f:76037**  
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- Shemer, Lev See Stlassnie, Michael, **85j:76010**
- Shen, M. C. Nonlinear water waves in a channel. **85c:76010**  
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- Shivamoggi, Bhimsen K. (with Debnath, Lokenath) Modulational stability of Korteweg-de Vries and Boussinesq wavetrains. **85i:76009**
- Singh, J. B. See Sachdev, P. L., **85k:76012**
- Stlassnie, Michael (with Shemer, Lev) On modifications of the Zakharov equation for surface gravity waves. **85j:76010**  
Note on the modified nonlinear Schrödinger equation for deep water waves. **85m:76016**
- Sugimoto, N. (with Kakutani, T.) Reflection of a shallow-water soliton. I. Edge layer for shallow-water waves. **85j:76011**
- Taniuti, Toshiya (with Nishihara, Katsunobu) ★ Nonlinear waves. **85f:76038**
- Toro, E. F. (with O'Carroll, M. J.) Types of stationary points in a variational formulation of shallow-water flows. **85k:76013**
- Turpin, François-Marc (with Benmoussa, Chakib; Mei, Chiang C.) Effects of slowly varying depth and current on the evolution of a Stokes wavepacket. **85c:76011**
- Vainberg, Yu. R. (with Meerson, B. I.; Sasorov, P. V.) Resonance excitation of nonlinear dispersive waves. **85f:76039**
- Vanden-Broeck, Jean-Marc Some new gravity waves in water of finite depth. **85c:76013**
- Vanina, E. G. Scattering of surface gravity waves by elliptic inhomogeneities. (Russian. English summary) **85b:76015**
- Voronovich, A. G. On the propagation of a packet of weakly nonlinear internal waves in a medium with a constant Väisälä frequency. **85i:76010**
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- Wen, Shih Liang (with Sastry, M. S. K.) Uniqueness of solution for dock problems. **85c:76011**
- Yoshida, Hideaki Capillary-gravity waves for an incompressible ideal fluid. **85j:76011**
- Yue, Zeng Yuan On the application of singular perturbation theory to waves in a self-gravitating medium. (Chinese. English summary) **85b:76012**
- Yuen, Henry C. (with Lake, Bruce M.) Nonlinear dynamics of deep-water gravity waves. **85a:76037**

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- Ablowitz, M. J. See Satsuma, Junkichi; et al., **85f:35187** and Santini, P. M.; et al., **85k:35214**
- Bartuccelli, M. (with Pantano, P.; Brugarino, T.) Two-dimensional Burgers equation. **85b:35050**  
(with Muto, V.; Carbonaro, P.) Two-dimensional KdV-Burgers for shallow-water waves. (Italian and Russian summaries) **85b:76024**
- Baumann, G. See Nonnenmacher, T. F.; et al., **85b:35058**
- Benjamin, T. B. Impulse, flow force and variational principles. **85b:76012a**  
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- Brugarino, T. See Bartuccelli, M.; et al., **85b:35050**
- Bruschi, M. See Levi, D.; et al., **85f:35182**
- Carbonaro, P. See Bartuccelli, M.; et al., **85b:76024**
- Chwang, Allen T. See Power, Henry, **85a:76039**
- Debnath, Lokenath Unsteady axisymmetric capillary-gravity waves in a viscous fluid. **85a:76052**
- Dobrokhotov, S. Yu. Maslov's methods in the linearized theory of gravitational waves on a liquid surface. (Russian) **85b:58125**
- Duke, G. See Nonnenmacher, T. F.; et al., **85b:35058**
- Fokas, A. S. See Santini, P. M.; et al., **85k:35214**
- Hayes, Michael Inhomogeneous plane waves. **85f:76029**
- Hua, Bach Lien (with Thomasset, François) A noise-free finite element scheme for the two-layer shallow water equations. **85k:76003**
- Levi, D. (with Ragnisco, O.; Bruschi, M.) Continuous and discrete matrix Burgers' hierarchies. (Italian summary) **85f:35182**
- Muto, V. See Bartuccelli, M.; et al., **85b:76024**
- Netrebko, E. O. (with Sushko, V. G.) Small-parameter asymptotics of some solutions of the stationary Burgers equation. (Russian) **85k:34140**
- Nonnenmacher, T. F. (with Duke, G.; Baumann, G.) On the nonlinear Schrödinger equation and its fluid-dynamical form. **85b:35058**
- Novikov, S. P. Hamiltonian formalism and variational-topological methods for finding periodic trajectories of conservative dynamical systems. **85d:58032**
- Olver, Peter Hamiltonian perturbation theory and water waves. **85i:58047**  
Hamiltonian and non-Hamiltonian models for water waves. **85k:58036**
- Pantano, P. See Bartuccelli, M.; et al., **85b:35050**
- Papa, L. Application of the Courant-Isaacson-Rees method to solve the shallow-water hydrodynamic equations. **85i:66002**
- Platonova, L. N. (with Shaashkov, M. Yu.) Application of the REDUCE system for construction of analytic solutions of "shallow water" equations. (Russian) **85i:76001**
- Power, Henry (with Chwang, Allen T.) On reflection of a planar solitary wave at a vertical wall. **85a:76039**
- Ragnisco, O. See Levi, D.; et al., **85f:35182**
- Santini, P. M. (with Ablowitz, M. J.; Fokas, A. S.) On the limit from the intermediate long wave equation to the Benjamin-Ono equation. **85k:35214**
- Satsuma, Junkichi (with Taha, Thibaut R.; Ablowitz, M. J.) On a Bäcklund transformation and scattering problem for the modified intermediate long wave equation. **85f:35187**
- Scharf, G. (with Wreszinski, W. F.) Asymptotic behaviour of solutions of the Korteweg-de Vries equation. **85c:35115**
- Scott, Alwyn C. Introduction to nonlinear waves. (See **85g:92003**)
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## 76B20 Ship waves

Do, C. (with Guevel, P.) Waves on a uniform flow in a channel of constant depth. 85g:76040

Guevel, P. See Do, C., 85g:76040

Huang, Ding Liang Wave resistance theory of a flat ship in shallow water. (Chinese. English summary) 85m:76017

Ursell, F. Mathematical note on the fundamental solution (Kelvin source) in ship hydrodynamics. 85i:76012

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## 76B25 Solitary and cnoidal waves

Akylas, T. R. On the excitation of long nonlinear water waves by a moving pressure distribution. 85c:76013

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Chu, C. K. (with Xiang, Long Wan; Baranaky, Y.) Solitary waves induced by boundary motion. 85i:76014

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Dai, Shi Qiang Head-on collisions between two interfacial solitary waves. (Chinese. English summary) 85f:76041

The generalized Boussinesq equations and obliquely interacting solitary waves in a stratified fluid. 85m:76018

Gear, J. A. (with Grimshaw, R.) Weak and strong interactions between internal solitary waves. 85i:76013

Green, A. E. The solitary wave with surface tension. 85c:76014

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Janssen, Peter A. E. M. (with Rasmussen, J. Juul) Nonlinear evolution of the transverse instability of plane-envelope solitons. 85b:76013

Laedke, E. W. (with Spatschek, K. H.; Stenflo, L.) Evolution theorem for a class of perturbed envelope soliton solutions. 85c:76012

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Mirre, Rida M. (with Su, Chau Hsing) Internal solitary waves and their head-on collision. I. 85m:76019

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- See also Liu, Lin Zhong, **85b:85006b**
- Liu, Lin Zhong (with Chen, Dao Han) Helical wave and K-H instability in type I comet tails. II. Waves of infinitesimal amplitude in compressible plasma. **85b:85006b**
- See also Chen, Dao Han, **85b:85006a**
- Moroz, Irene M. (with Brindley, John) Soliton behaviour in models of baroclinic instability. (See **85d:76001**)
- Priest, E. R. See Browning, P. K., **85c:85001**
- Shirer, Hampton N. (with Wells, Robert) ★ Mathematical structure of the singularities at the transitions between steady states in hydrodynamic systems. **85m:58036**
- Spruit, H. C. (with van Ballegoijen, A. A.) Stability of toroidal flux tubes in stars. **85a:85005a**
- (with van Ballegoijen, A. A.) Erratum: "Stability of toroidal flux tubes in stars". **85a:85005b**
- Wells, Robert See Shirer, Hampton N., **85m:58036**

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- Bhardwaj, U. D. See Gupta, J. R.; et al., **85f:76068**
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- Fung, Y. T. On the stability of vortex motions in the presence of magnetic fields. **85b:76031**
- Gloaguen, C. See Pouquet, A.; et al., **(85h:58121)**
- Grappin, R. See Pouquet, A.; et al., **(85h:58121)**
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- On the stability of generalized hydromagnetic convection. III. Determination of amplitude past marginal state. **85c:76040b**
- (with Sood, S. K.; Bhardwaj, U. D.) On Rayleigh-Bénard convection with rotation and magnetic field. (German summary) **85f:76068**
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- Laurence, Peter (with Shen, M. C.) Justification of the MHD energy principle for the stability of a confined toroidal plasma. **85b:76032**
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- Mittal, M. L. (with Masapati, G. H.) The stability analysis of a magnetohydrodynamic channel flow with anisotropic conductivity. **85a:76059**
- Pouquet, A. (with Gloaguen, C.; Leorat, J.; Grappin, R.) A scalar model of MHD turbulence. (See **85h:58121**)
- Sasakura, Yutaka Semi-ellipse theorem for the heterogeneous swirling flow in an azimuthal magnetic field with respect to axisymmetric disturbances. **85f:76069**
- Sermange, Michel Modélisation de la stabilité magnétohydrodynamique bidimensionnelle par un problème aux limites généralisé. (English summary) [Modelling two-dimensional magnetohydrodynamic stability by a generalized boundary value problem] **85a:76060**
- Sharma, B. M. The Rayleigh-Taylor instability through porous medium of viscoelastic fluid in the presence of a horizontal magnetic field. **85m:76028**
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- Similon, Philippe L. (with Kaufman, Allan N.; Holm, Darryl D.) Ponderomotive Hamiltonian and Lyapunov stability for magnetically confined plasma in the presence of rf field. **85m:76029**
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- Yurchenko, E. I. See Blekher, P. M.; et al., **85a:76057**
- Zueva, N. M. See Blekher, P. M.; et al., **85a:76057**

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- Filonenko, N. N. See Zaslavskii, G. M.; et al., **85c:34001**
- Glasser, A. H. See De Lucia, J.; et al., **85c:76062**
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- Jardin, S. C. See De Lucia, J.; et al., **85c:76062**
- Knobloch, Edgar (with Weiss, N. O.) Bifurcations in a model of magnetoconvection. **85a:58088**
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- Zaslavskii, G. M. (with Meltis, V. P.; Filonenko, N. N.) ★ Взаимодействие волн в неоднородных средах. (Russian) [Interaction of waves in inhomogeneous media] **85c:34001**
- Zweifel, P. F. See Larsen, E. W.; et al., **85a:82059**

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- Hickernell, Fred J. The evolution of large-horizontal-scale disturbances in marginally stable, inviscid, shear flows. I. Derivation of the amplitude evolution equations. **85c:76029a**
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- See also Shivamoggi, Bhimsen K., **85i:76030**
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- Ratiu, Tudor See Abarbanel, Henry D. I.; et al., **85c:76028**
- Rosenau, Philip See Pao, Young Ping; et al., **85b:76035**
- Rosso, Fabio Variational methods for pointwise stability of viscous fluid motions. **85m:76031**
- On the pointwise stability of a viscous liquid between rotating coaxial cylinders. **85f:76071**
- Shivamoggi, Bhimsen K. Comments on: "Nonlinear Rayleigh-Taylor instability" [Astrophys. and Space Sci. **90** (1983), no. 1, 45-50; MR **84c:76037**] by S. K. Malik and M. Singh. **85i:76030**
- Singh, Manohar See Malik, S. K., **85m:76030** and Shivamoggi, Bhimsen K., **85i:76030**
- Smith, F. T. See Hall, Philip, **85b:76034**
- Strumolo, Gary S. Perturbed bifurcation theory for Poiseuille annular flow. **85a:76061**
- Zhou, Heng Three-dimensional nonlinear stability problems for the plane Poiseuille flow in the subcritical range. I. Extension of the idea of resonant triad. (Chinese. English summary) **85m:76032**

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- Cliffe, K. A. (with Winters, K. H.) A numerical study of the cusp catastrophe for Bénard convection in tilted cavities. **85f:76066**
- Rosso, Fabio On the mathematical problem of linear and nonlinear hydrodynamic stability with completely perturbed data. **85c:35098**
- Roux, J.-C. See Swinney, Harry L.; et al., **85m:80014**
- Simoyi, Reuben H. See Swinney, Harry L.; et al., **85m:80014**
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- Geometry and dynamics in experiments on chaotic systems. **85h:58118**
- Winters, K. H. See Cliffe, K. A., **85f:76066**

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- Benney, D. J. The evolution of disturbances in shear flows at high Reynolds numbers. **85b:76036**
- Benzi, Roberto (with Suter, Alfonso) Stochastic perturbations of the five-component Bénard system. **85k:76020**
- Bhattacharyya, Sankari Prasad (with Jena, S. K.) On the stability of a hot layer of micropolar fluid. **85b:76037**
- Brady, J. F. See Durlofsky, L., **85c:76031**
- Brown, S. N. See Stewartson, K., **85b:76038**
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- Dafermos, C. M. Stabilizing effects of dissipation. **85c:76041**
- Durlofsky, L. (with Brady, J. F.) The spatial stability of a class of similarity solutions. **85c:76031**
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- Li, Li On the stability of the rotational motion of a rigid body having a liquid filled cavity under finite initial disturbance. **85c:76043**  
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- Afendikov, A. L. Branching in the presence of a group of symmetries and bifurcation of Taylor vortices. (Russian) **85f:56024**  
 (with Babenko, K. I.) Stability of Taylor vortices. (Russian) (Not in MR)  
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 Schiffmann, Y. Nonequilibrium as a source of unmixing. **85a:92016**  
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 Wang, Zhao Lin (with Huang, Shi Tao) Methods of large-scale systems with weighted  $V$  functions and stability of mechanical systems. (Chinese. English summary) **85i:76033**  
 Xu, Shao Chang An application of adjoint variational method to the capillary instability in liquid. **85c:76018**

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- Leslie, D. C. ★ Developments in the theory of turbulence. **85m:76034**

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- (Gaponov-Grekhov, A. V.) See Hydrodynamic instabilities and the transition to turbulence, **85f:76064**  
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 Kyoto, chaos and statistical methods ★ Chaos and statistical methods. **85h:58121**

#### 76F05 Homogeneous isotropic turbulence

- Foias, C. (with Manley, O. P.; Temam, Roger) New representation of Navier-Stokes equations governing self-similar homogeneous turbulence. **85a:76062**  
 Frisch, U. The analytic structure of turbulent flows. (See **85h:58121**)  
 Khomenko, G. A. See Moiseev, S. S.; et al., **85m:76035**  
 Manley, O. P. See Foias, C.; et al., **85a:76062**  
 Moiseev, S. S. (with Sagdeev, A. V.; Tur, A. V.; Khomenko, G. A.; Yanovskii, V. V.) Theory of the origin of large-scale structures in hydrodynamic turbulence. **85m:76035**  
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- Chen, Su Shing Crystallographic groups and homogeneous statistical solutions of Navier-Stokes equations. **85g:35098**  
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#### 76F10 Shear flows

- Finnigan, J. J. A streamline coordinate system for distorted two-dimensional shear flows. **85a:76063**  
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- Adahemyan, L. Ts. (with Vasil'ev, A. N.; Pis'mak, Yu. M.) Renormalization group approach in turbulence theory: dimensions of composite operators. (Russian. English summary) **85j:76018**  
 Constantin, P. (with Foias, C.; Manley, O. P.; Temam, Roger) Connexion entre la théorie mathématique des équations de Navier-Stokes et la théorie conventionnelle de la turbulence. (English summary) [Connection between the mathematical theory of the Navier-Stokes equations and the conventional theory of turbulence] **85c:76043**  
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 Kleiser, L. (with Schumann, U.) Spectral simulations of the laminar-turbulent transition process in plane Poiseuille flow. **85h:76027**  
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 Takayasu, H. Stable distribution and Lévy process in fractal turbulence. **85m:76037**  
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- Beale, J. T. (with Kato, Tosio; Majda, Andrew) Remarks on the breakdown of smooth solutions for the 3-D Euler equations. **85j:35154**  
 Brachet, M.-E. (with Meiron, D.; Orszag, S. A.; Nickel, B.; Morf, R.; Frisch, U.) The Taylor-Green vortex and fully developed turbulence. **85f:76002**  
 Frisch, U. See Brachet, M.-E.; et al., **85f:76002**  
 Iooss, Gérard Bifurcation and transition to turbulence in hydrodynamics. **85h:58128**  
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 Ostlund, Stellan (with Rand, David; Sethna, James; Siggia, Eric) Universal properties of the transition from quasiperiodicity to chaos in dissipative systems. **85d:58066**  
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 Ritala, Risto (with Salomas, Martti) Chaotic dynamics. (Finnish. English summary) **85a:58001**  
 Robinson, Allen Conrad (with Saffman, P. G.) Stability and structure of stretched vortices. **85m:76022**  
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 Shralman, Boris I. Transition from quasiperiodicity to chaos: a perturbative renormalization-group approach. **85f:58099**  
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 Sitenko, A. G. (with Sosenko, P. P.) Renormalized statistical theory of turbulence in a plasma. (Russian. English summary) **85m:82086**  
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#### 76Gxx General aerodynamics and subsonic flows

##### 76G05 Hodograph methods

- Dębiński, Henryk Method of hodograph for a one-dimensional nonstationary gas flow in a tube. (Russian and Polish summaries) **85c:76047**

- Dias Dias, Jesús Ildefonso (with Dou, Albert) On subsonic flow around a symmetric obstacle. (Spanish. English summary) 85c:76048
- Dou, Albert See Dias Dias, Jesús Ildefonso, 85c:76048
- Jude, Lucian An evaluation of the contraction coefficient in a Kirchhoff-type problem. (Romanian. French summary) 85a:76064
- Saffman, P. G. (with Tanveer, S.) Vortex induced lift on two-dimensional low speed wings. 85f:76074
- Tanveer, S. See Saffman, P. G., 85f:76074

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- Karpp, Robert R. An exact partial solution to the compressible flow problems of jet formation and penetration in plane, steady flow. 85b:76039

## 76G10 Kármán-Tsien approximation

- Osipov, I. L. Well-posedness of a problem of profiling of a Laval nozzle. (Russian) 85c:76034

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- Jude, Lucian An evaluation of the contraction coefficient in a Kirchhoff-type problem. (Romanian. French summary) 85a:76064

## 76G20 Free-streamline theory

- Longo, E. (with Pandolfi, M.) Modelling and optimization problems for stochastic constrained functionals in the kinetic theory of aerodynamical shapes. (See 85g:93006)
- Pandolfi, M. See Longo, E., (85g:93006)

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- Buggle, G. (with Meister, E.) Zur Theorie rotierender und schwingender Schaufelkränze in einer Unterschallströmung durch einen Ringkanal. [On the theory of rotating and vibrating blade rows operating in a subsonic flow through an annular channel] 85g:76017
- Ducaru-Draga, Ana A numerical study of cyclic subsonic flow around a circular obstacle. (Romanian. French summary) 85a:76065
- Jacob, Calus Sur une solution classique de l'aérodynamique linéaire. [On a classified solution of linear aerodynamics] (See 85m:00005)
- Meister, E. See Bugge, G., 85g:76017
- Solomyak, T. B. An axisymmetric problem for subsonic flow with a discontinuous vortex. (Russian) 85f:76075

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- Fan, Quan Xin See Xu, Li Zhi, 85c:49038
- Hui, W. H. (with Tobak, Murray) Bifurcation analysis of aircraft pitching motions near the stability boundary. (See 85i:00011)
- Kalinowski, M. W. Gauge transformation of simple waves. 85b:58176
- Kühnau, Reiner Eine Extremalcharakterisierung von Unterschallgasströmungen durch quasikonforme Abbildungen. [An extremal characterisation of subsonic gas flows by quasiconformal mapping] 85i:30044
- Pasaschiu, Ion Nouvelle approche pour le calcul des ailes subsoniques de grand allongement. [New approach to calculating subsonic airfoils with wide span] 85j:76006
- Tobak, Murray See Hui, W. H., (85i:00011)
- Xu, Li Zhi (with Fan, Quan Xin) On a minimization problem of a triple drag integral. (Chinese. English summary) 85c:49038

## 76H05 Transonic flows, limit lines

- Glas, Harland M. (with Liu, Tai Ping) The asymptotic analysis of wave interactions and numerical calculations of transonic nozzle flow. 85j:76019
- Liu, Tai Ping See Glas, Harland M., 85j:76019
- Mamonov, E. V. Estimates of the solutions of an equation of small perturbations in a transonic gas flow. (Russian) 85f:76076
- Niederdröck, P. Gleitende Stoffeinpassung in schallnaher Strömung. [Floating shock fitting in transonic flow] (Not in MR)
- Smith, P. D. A smooth transonic flow in the plane. 85k:76021

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- Angrand, Françoise (with Dervieux, Alain) Some explicit triangular finite element schemes for the Euler equations. 85k:65079
- Batiste, Duane M. See Flores, Jolen; et al., 85f:76007
- Caughy, D. A. Multigrid calculation of three-dimensional transonic potential flows. 85a:76002
- Cheer, A. Y. Numerical study of incompressible slightly viscous flow past blunt bodies and airfoils. 85a:76004
- Dervieux, Alain See Grand, Françoise, 85k:65079
- Flores, Jolen (with Holst, Terry L.; Kwak, Dochan; Batiste, Duane M.) A new consistent spatial differencing scheme for the transonic full-potential equation. 85f:76007
- Gottlieb, David (with Lustman, Liviu; Streett, Craig L.) Spectral methods for two-dimensional shocks. 85h:76005
- Holst, Terry L. See Flores, Jolen; et al., 85f:76007
- Jameson, Antony Solution of the Euler equations for two-dimensional transonic flow by a multigrid method. 85f:76011
- Kwak, Dochan See Flores, Jolen; et al., 85f:76007
- Li, Cai Zhong (with Liu, Tai Ping) Asymptotic states for hyperbolic conservation laws with a moving source. 85a:35057
- Liu, Tai Ping See Li, Cai Zhong, 85a:35057

- Lustman, Liviu See Gottlieb, David; et al., 85h:76005
- Streett, Craig L. See Gottlieb, David; et al., 85h:76005

## 76Jxx Supersonic flows

### 76J10 Method of characteristics

- Osher, Stanley See Shankar, Vijaya, 85a:76066
- Shankar, Vijaya (with Osher, Stanley) An efficient, full-potential implicit method based on characteristics for supersonic flows. 85a:76066

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- Marshall, Guillermo (with Plohr, Bradley) A random choice method for two-dimensional steady supersonic shock wave diffraction problems. 85m:76006
- Plohr, Bradley See Marshall, Guillermo, 85m:76006

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- Bendiksen, O. O. A uniformly valid asymptotic solution for unsteady subsonic flow through supersonic cascades. 85c:76049
- Burton, Dale E. See Tam, Christopher K. W., 85m:76038a and 85m:76038b
- Ilyushkin, V. M. (with Tumashev, G. G.) An inverse problem of the theory of a thin wing in a supersonic flow. (Russian) 85h:76028
- Karlin, V. A. Calculation of symmetric flow around a cone by the method of fictitious unknowns. (Russian. English summary) 85f:76077
- Tam, Christopher K. W. (with Burton, Dale E.) Sound generated by instability waves of supersonic flows. I. Two-dimensional mixing layers. 85m:76038a
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- Triph Dink An Sur les conditions de validité physique en écoulement supersonique autour d'un obstacle conique de faible ouverture. [Physical validity conditions for supersonic flow around a conical obstacle with a weak opening] 85f:76078
- Tumashev, G. G. See Ilyushkin, V. M., 85h:76028
- Voskresenskii, G. P. A numerical method of calculation of supersonic flow around aircraft wings. (Russian) 85f:76079

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- Kalinowski, M. W. On the old-new method of solving nonlinear equations. 85i:35005

## 76K05 Hypersonic flows

- Ostapenko, N. A. Bodies of minimal wave drag in a swirling hypersonic flow. 85a:76067

## 76L05 Shock waves and blast waves [See also 73D05.]

- Bogatzko, V. I. (with Kolton, G. A.) Regular reflection of a strong shock wave by the surface of a wedge. 85c:76035
- Bogdanov, A. V. (with Vakulenko, S. A.; Strel'chenya, V. M.) Propagation of perturbations in nonlinear media with dispersion and dissipation. (Russian) (Not in MR)
- Borisova, T. V. (with Il'inskiĭ, N. B.; Khaĭrullin, Z. Ė.) Development of the method of boundary integral equations in relation to problems of blast ejection. (Russian) 85h:76029
- Cattaneo, C. ★ Elementi di teoria della propagazione ondosa. (Italian) [Elements of the theory of wave propagation] 85f:76080
- Cramer, M. S. (with Kluwick, A.) On the propagation of waves exhibiting both positive and negative nonlinearity. 85m:76039
- Ferrali, F. See Virgopla, N., 85g:76018
- Fowles, G. R. (with Houwing, A. F. P.) Instabilities of shock and detonation waves. 85j:76020
- Hagan, Robert Michael, Jr. (with Slemrod, Marshall) The viscosity-capillarity criterion for shocks and phase transitions. 85i:76033
- Houwing, A. F. P. See Fowles, G. R., 85j:76020
- Hunter, John K. (with Keller, Joseph B.) Erratum: "Weak shock diffraction" [Wave Motion 6 (1984), no. 1, 79-89; MR 84m:76066]. 85f:76081
- Il'inskiĭ, N. B. See Borisova, T. V.; et al., 85h:76029
- Jedinsky, V. See Strakraba, I., (Not in MR)
- Keller, Joseph B. See Hunter, John K., 85f:76081
- Khaĭrullin, Z. Ė. See Borisova, T. V.; et al., 85h:76029
- Kluwick, A. See Cramer, M. S., 85m:76039
- Kolton, G. A. See Bogatzko, V. I., 85c:76035
- Korobeinikov, V. P. (with Markov, V. V.; Men'shov, I. S.) The problem of a strong blast in a dust-filled gas. (Russian) 85m:76040
- Lardner, R. W. Higher order shock structure for a class of generalized Burgers' equations. (Arabic summary) 85m:76041
- Markov, V. V. See Korobeinikov, V. P.; et al., 85m:76040
- Men'shov, I. S. See Korobeinikov, V. P.; et al., 85m:76040
- (Pluchino, Salvatore) See Cattaneo, C., 85f:76080
- Prasad, Phoolan See Ramanathan, T. M.; et al., 85k:76022
- Ramanathan, T. M. (with Prasad, Phoolan; Ravindran, R.) On the propagation of a weak shock front: theory and application. 85k:76022
- Ravindran, R. See Ramanathan, T. M.; et al., 85k:76022
- Ruggeri, Tommaso Symmetric-hyperbolic system of conservative equations for a viscous heat conducting fluid. 85d:76016
- Sharma, V. D. (with Shyam, Radhe) Regular reflection of a shock wave from a rigid wall in a steady plane flow of a vibrationally relaxing gas. 85a:76068
- Shyam, Radhe See Sharma, V. D., 85a:76068
- Sidorenko, A. D. Wave adiabatic curves for media with arbitrary state equation. 85k:76036

- Singh, J. B. (with Vishwakarma, P. R.) Self-similar flows behind cylindrical shock waves in magnetogasdynamics. **85a:76069**
- Siemrod, Marshall An admissibility criterion for fluids exhibiting phase transitions. **85j:76037**
- See also Hagan, Robert Michael, Jr., **85i:76033**
- Strakraba, I. (with Jendinský, V.) Time of breakdown of a smooth one-dimensional inviscid fluid flow in a tube. (Not in MR)
- Streichenya, V. M. See Bogdanov, A. V.; et al. (Not in MR)
- Taylor, P. A. Growth and decay of one-dimensional shock waves in multiphase mixtures. **85j:76021**
- Vakulenko, S. A. See Bogdanov, A. V.; et al. (Not in MR)
- Virgopla, N. Critical time for asymptotic waves in self-similar flows. (French and German summaries) **85e:76038**
- (with Ferraioli, F.) On the shock-wave-generating function in a simple mixture of gases. (Italian and Russian summaries) **85g:76018**
- Vishwakarma, P. R. See Singh, J. B., **85a:76069**

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- Busurina, L. N. (with Volosovich, P. P.; Galiguzova, I. I.; Levano, E. I.; Tsareva, L. S.) Various modes of heat transfer in two-temperature gas dynamics. (Russian) **85a:76072**
- Chang, Peter H. Numerical solutions of shock curves of hyperbolic 1-conservation laws. **85b:85093**
- Colella, Phillip See Woodward, Paul, **85e:76004**
- Cox, Edward A. (with Mortell, M. P.) The evolution of resonant oscillations in closed tubes. (German summary) **85a:76080**
- Dafermos, C. M. Hyperbolic systems of conservation laws. **85b:35144**
- Galiguzova, I. I. See Busurina, L. N.; et al., **85a:76072**
- Garlick, A. R. The use of distorting grids and flux splitting to model axisymmetric adiabatic explosions. **85a:76009**
- Gottlieb, David (with Lustman, Liviu; Streett, Craig L.) Spectral methods for two-dimensional shocks. **85b:76005**
- Hemeraiki, Mahmud The structure of shock waves in magnetohydrodynamics. **85i:76054**
- Holm, Darryl D. (with Logan, J. David) Self-similar detonation waves. **85e:76058**
- Kana, E. J. (with Morgan, D. L., Jr.; Morris, L. K.) A simplified moving finite difference scheme: application to dense gas dispersion. **85f:76012**
- Krasil'chikova, E. A. Diffraction of a weak shock wave by a plate moving near a plane boundary. (Russian) **85k:35143**
- Levano, E. I. See Busurina, L. N.; et al., **85a:76072**
- Logan, J. David See Holm, Darryl D., **85e:76058**
- Lorenz, Jens An elementary introduction to and analytic properties of some shock problems. **85g:35078a**
- Discretization of conservation laws and numerical dissipation. **85g:35078b**
- Iterative solution of nonlinear difference equations for shock problems. **85g:35079**
- Lustman, Liviu See Gottlieb, David; et al., **85b:76005**
- Majda, Andrew The existence of multidimensional shock fronts. **85f:35139**
- ★ Compressible fluid flow and systems of conservation laws in several space variables. **85e:35077**
- Marshall, Guillermo (with Plohr, Bradley) A random choice method for two-dimensional steady supersonic shock wave diffraction problems. **85m:76006**
- Morgan, D. L., Jr. See Kana, E. J.; et al., **85f:76012**
- Morris, L. K. See Kana, E. J.; et al., **85f:76012**
- Mortell, M. P. See Cox, Edward A., **85a:76080**
- Pego, Robert L. Stable viscosities and shock profiles for systems of conservation laws. **85f:35138**
- Plohr, Bradley See Marshall, Guillermo, **85m:76006**
- Singh, V. K. See Verma, B. G.; et al., **85f:85011**
- Srivastava, R. C. See Verma, B. G.; et al., **85f:85011**
- Streett, Craig L. See Gottlieb, David; et al., **85b:76005**
- Taniuti, Toshiya A theory of weak shocks. **85e:35080**
- Taub, A. H. Singular shocks. **85g:83020**
- Tsareva, L. S. See Busurina, L. N.; et al., **85a:76072**
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- Volosovich, P. P. See Busurina, L. N.; et al., **85a:76072**
- Voroshtsov, E. V. (with Yanenko, N. N.) On some optimization procedures for shock localization. **85j:76002**
- Woodward, Paul (with Colella, Phillip) The numerical simulation of two-dimensional fluid flow with strong shocks. **85e:76004**
- Yanenko, N. N. See Voroshtsov, E. V., **85j:76002**

## 76Nxx Compressible fluids and gas dynamics, general

## 76N05 Boundary layer theory

- Bar-Yoseph, Pinchas (with Olek, Shmuel) Asymptotic and finite element approximations for heat transfer in rotating compressible flow over an infinite porous disk. **85j:76022**
- GreenSPAN, H. P. Compressible Ekman layers on curved boundaries. **85g:76019**
- Khusnutdinova, N. V. Conditions for global solvability of boundary value problems for a system of equations of a stationary boundary layer of a compressible fluid. (Russian) **85m:76042**
- Mack, Leslie M. Remarks on disputed numerical results in compressible boundary-layer stability theory. **85k:76023**

- Merslyakov, A. A. A difference algorithm for solution of equations of a boundary layer. (Russian) **85i:76034**
- Olek, Shmuel See Bar-Yoseph, Pinchas, **85j:76022**
- Petukhov, I. V. Calculation of a two-dimensional boundary layer in the neighborhood of an isolated critical point. (Russian) **85f:76083**

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- Bektursunov, U. The third invariant of the tensor of the measure of deformation. (Russian. Kazakh summary) **85i:76035**
- Chia, T. T. An alternative approach to steady flows of a compressible, frictionless and polytropic fluid through a nozzle. **85h:76030**
- Feistauer, M. On nonviscous flows in cascades of blades.
- Karpp, Robert R. An exact partial solution to the compressible flow problems of jet formation and penetration in plane, steady flow. **85b:76039**
- Kawashima, Shuichi See Okada, Mari, **85c:76050**
- Lagha-Benabdallah, A. Limites des équations d'un fluide compressible lorsque la compressibilité tend vers zéro. [Limits of equations of a compressible fluid when the compressibility tends towards zero] **85j:76023**
- Lin, Zheng Guo The rigid wall boundary problem for aerodynamics equations. **85m:76043**
- Lukaszewicz, Grzegorz On an estimate of the temperature of a viscous compressible fluid. (Russian summary) **85e:76039**
- Majda, Andrew Smooth solutions for the equations of compressible and incompressible fluid flow. **85j:76024**
- Matsumura, Akitaka (with Nishida, Takaaki) Initial-boundary value problems for the equations of compressible viscous and heat-conductive fluid. **85d:76017**
- Nishida, Takaaki See Matsumura, Akitaka, **85d:76017**
- Okada, Mari (with Kawashima, Shuichi) On the equations of one-dimensional motion of compressible viscous fluids. **85c:76050**
- Padula, M. On the uniqueness of viscous, compressible steady flows. **85f:76083**
- Pal'ko, L. S. Fundamental solutions of the linearized equations of the hydrodynamics of a viscous fluid. **85b:76040**
- Qian, Wei Chang Variational principles and generalized variational principles in hydrodynamics of viscous fluids. **85j:76025**
- Serrin, James The form of interfacial surfaces in Korteweg's theory of phase equilibria. **85d:76018**
- Shen, M. C. Ray method for flow of a compressible viscous fluid. **85a:76070**
- Shih, Wei Hui Sur les solutions analytiques de l'équation d'un fluide général. (English summary) [Analytical solutions of the equation for a general fluid] **85f:76084**
- Siemrod, Marshall Dynamic phase transitions in a van der Waals fluid. **85e:76040**

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- Garadshvili, A. Wave propagation in a channel with an elastic bottom, filled with an ideal compressible liquid. (Russian) **85f:76066**
- Giro, Zh. P. (with Zeytounian, Radvadour Kh.) Behavior of a medium with weak diffusion for large time values. (Russian) **85b:80009**
- Majda, Andrew ★ Compressible fluid flow and systems of conservation laws in several space variables. **85e:35077**
- Paakonov, V. M. (with Rusakov, S. V.) Construction of difference spline-schemes. (Russian) **85f:76018**
- Rusakov, S. V. See Paakonov, V. M., **85f:76018**
- Zeytounian, Radvadour Kh. See Giro, Zh. P., **85b:80009**
- Zheng, Song Mu Initial-boundary value problems for quasilinear hyperbolic-parabolic coupled systems in higher-dimensional spaces. **85g:35085**

## 76N15 Gas dynamics, general

- Antonov, A. M. (with Donchenko, N. A.) Optimal control of moderate distributed insufflation in flow of a gas around bodies. (Russian) **85k:76024**
- Ardelyan, N. V. (with Chernigovskii, S. V.) Convergence of difference schemes for two-dimensional equations of gas dynamics taking account of gravitation in an acoustic approximation. (Russian) **85j:76026**
- Babaeva, O. Yu. (with Chetverushkin, B. N.) Allowance for radiation in two-dimensional problems of radiative gas dynamics. (Russian) **85a:76071**
- Bautin, S. P. One-dimensional escape of a gas into a vacuum. (Russian) **85j:76027**
- Two-dimensional time-dependent flow of an ideal gas into a vacuum in the case of a rectilinear free surface. (Russian) **85f:76085**
- (with Deryabin, S. L.) The flow of ideal gas into a vacuum. (Russian) **85m:76044**
- Belov, S. Ya. The problem of filling a vacuum with a viscous heat conducting gas. (Russian) **85f:76086**
- Burnat, M. The Bernoulli manifolds for nonelliptic quasilinear systems of first order and applications in continuum mechanics. **85b:76041**
- Busurina, L. N. (with Volosovich, P. P.; Galiguzova, I. I.; Levano, E. I.; Tsareva, L. S.) Various modes of heat transfer in two-temperature gas dynamics. (Russian) **85a:76072**
- Chernigovskii, S. V. See Ardelyan, N. V., **85j:76026**
- Chetverushkin, B. N. See Babaeva, O. Yu., **85a:76071** and Volchinskaya, M. I.; et al., **85f:76091**
- Dar'ina, N. A. See Volosovich, P. P., (Not in MR)
- Deryabin, S. L. Three-dimensional escape into a vacuum from a state of rest. (Russian) **85f:76087**
- See also Bautin, S. P., **85m:76044**
- Donchenko, N. A. See Antonov, A. M., **85k:76024**
- Ermolin, E. V. (with Mokeyev, A. M.) A class of self-similar solutions in problems of gas dynamics with heat conduction. (Russian) **85i:76036**
- Francescutto, A. (with Nabergoj, R.) A multiscale analysis of gas bubble oscillations: transient and steady-state solutions. (French and German summaries) **85i:76037**
- Galiguzova, I. I. See Busurina, L. N.; et al., **85a:76072**



- Gasilov, V. A. (with Golovizin, V. M.; Sorokovikova, O. S.) The variational approach to the construction of discrete mathematical models of gas dynamics in mixed Euler-Lagrange variables. (Russian) **85f:76088**
- Gerlach, Jürgen Two linearized models for a hyperbolic free boundary value problem. (German summary) **85m:76045**
- Glimm, James (with Marshall, Guillermo; Plohr, Bradley) A generalized Riemann problem for quasi-one-dimensional gas flows. **85e:76041**
- Golovizin, V. M. (with Krayushkin, I. E.; Ryazanov, M. A.; Samarskiĭ, A. A.) Two-dimensional conservative difference schemes of gas dynamics with spaced velocities. (Russian) **85f:76089**
- (with Kanyukova, V. D.; Samarskaya, E. A.) Super-implicit difference schemes of gas dynamics. (Russian) **85a:76073**
- (with Korshunov, V. K.; Sabitova, A.; Samarskaya, E. A.) Stability of variational-difference schemes of gas dynamics. (Russian) **85g:76020**
- See also Gasilov, V. A.; et al., **85f:76088**
- Guo, Yu Fa Error estimates of the finite decomposition method for systems of gas dynamics equations. (Chinese) **85k:76025**
- Kanyukova, V. D. See Golovizin, V. M.; et al., **85a:76073**
- Korshunov, V. K. See Golovizin, V. M.; et al., **85g:76020**
- Kostyrko, I. I. Construction of self-similar solutions of equations of gas dynamics with the most general power sources. (Russian. English summary) **85b:76042**
- Krayushkin, I. E. See Golovizin, V. M.; et al., **85f:76089**
- Levanov, E. I. See Busurina, L. N.; et al., **85a:76072**
- Manacorda, T. Macroscopic theory of internal radiation in continua. (Italian. English summary) **85d:76019**
- Marshall, Guillermo See Glimm, James; et al., **85e:76041**
- Matus, P. P. (with Shavel', A. N.) Convergence of difference schemes for one-dimensional problems of gas dynamics taking into account heat conduction. (Russian) **85b:76043**
- Mikhailova, T. F. A problem of parametric optimization of gas transport in a partially liquified layer. (Russian) **85e:76042**
- Mokeev, A. M. See Ermolin, E. V., **85i:76036**
- Nabergoj, R. See Francescutto, A., **85i:76037**
- Nikolaev, V. B. A boundary value problem for equations of one-dimensional barotropic motion of a viscous gas with a nonmonotone state function. (Russian) **85f:76090**
- Ostapenko, V. V. (with Sapozhnikov, G. A.) Nonconservative difference schemes of gas dynamics. (Russian) **85b:76044**
- Pavlov, A. N. See Volchinskaya, M. I.; et al., **85f:76091**
- Plohr, Bradley See Glimm, James; et al., **85e:76041**
- Pustylnikov, L. D. A problem of Ulam. (Russian. English summary) **85a:76074**
- Rogulski, Jan On the dependence of temperature and density on the velocity vector field in the motion of viscous gas. **85h:76031**
- Romanovskii, Yu. R. Properties of collision operators of kinetic equations for a gas mixture. (Russian) **85b:76045**
- Ryazanov, M. A. See Golovizin, V. M.; et al., **85f:76089**
- Sabitova, A. See Golovizin, V. M.; et al., **85g:76020**
- Samarskaya, E. A. See Golovizin, V. M.; et al., **85a:76073** and **85g:76020**
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- Shavel', A. N. See Matus, P. P., **85b:76043**
- Shelukhin, V. V. Motion with a contact discontinuity in a viscous heat conducting gas. (Russian) **85i:76038**
- Slavutskii, S. L. Group properties of certain equations of hydrogasdynamics. (Russian. English summary) **85m:76046**
- Solnechnyi, E. M. Asymptotic behavior of properties of a gas flow when the Mach number approaches zero. (Russian) **85h:76032**
- Sorokovikova, O. S. See Gasilov, V. A.; et al., **85f:76088**
- Tsareva, L. S. See Busurina, L. N.; et al., **85a:76072**
- Volchinskaya, M. I. (with Pavlov, A. N.; Chetverushkin, B. N.) A scheme for integration of gas dynamics equations. (Russian) **85f:76091**
- Volosevich, P. P. (with Dar'ın, N. A.) Self-similar problems of two-temperature gas dynamics with energy sources and sinks. (Russian. English summary)
- See also Busurina, L. N.; et al., **85a:76072**
- secondary classifications (76N15)
- Belov, S. Ya. Problems of optimal control of flows of a viscous gas. (Russian) **85k:49011**
- Berdichevskii, V. L. ★ Вариационные принципы механики сплошной среды. (Russian) [Variational principles of continuum mechanics] **85e:49059**
- Buggle, G. (with Meister, E.) Zur Theorie rotierender und schwingender Schaufelkränze in einer Unterschallströmung durch einen Ringkanal. [On the theory of rotating and vibrating blade rows operating in a subsonic flow through an annular channel] **85g:76017**
- Charakhch'yan, A. A. Modification of Godunov's scheme in Euler variables. (Russian) **85a:76003**
- Cramer, M. S. (with Kluwick, A.) On the propagation of waves exhibiting both positive and negative nonlinearity. **85m:76039**
- DiPerna, Ronald J. Convergence of the viscosity method for isentropic gas dynamics. **85i:35118**
- Ermolin, E. V. (with Mokeev, A. M.; Mukhambetzhano, S. G.) Self-similar solution of the problem of a piston in relativistic gas dynamics. (Russian) **85h:76054**
- Fursenko, A. A. See Volnovich, P. A., **85g:76006**
- Gavrilyuk, S. L. The problem of decay of an arbitrary discontinuity in media with anomalous thermodynamic properties. (Russian) **85m:35042**
- Kluwick, A. See Cramer, M. S., **85m:76039**
- Liu, I Shih (with Müller, Ingo) Extended thermodynamics of classical and degenerate ideal gases. **85j:80001**
- Lukaszewicz, Grzegorz An existence theorem for compressible viscous and heat conducting fluids. **85h:35173**
- Meister, E. See Buggle, G., **85g:76017**
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- Mukhambetzhano, S. G. See Ermolin, E. V.; et al., **85h:76054**
- Mukhin, S. I. (with Popov, S. B.; Popov, Yu. P.) Difference schemes with artificial dispersion. (Russian) **85h:65191**
- Müller, Ingo See Liu, I Shih, **85j:80001**
- Petrov, A. N. Well-posedness of initial-boundary value problems for one-dimensional equations of the interpenetrating motion of perfect gases. (Russian) **85h:35150**
- Popov, S. B. See Mukhin, S. I.; et al., **85h:65191**
- Popov, Yu. P. See Mukhin, S. I.; et al., **85h:65191**
- Pryashinskii, V. I. Principal terms of the asymptotic expansion on a wave of rarefaction for a model equation of gas dynamics. (Russian) **85a:35018**
- Rozhddestvenskiĭ, B. L. (with Yanenko, N. N.) ★ Systems of quasilinear equations and their applications to gas dynamics. **85f:35127**
- (Schulenberg, J. R.) See Rozhddestvenskiĭ, B. L., **85f:35127**
- Volnovich, P. A. (with Fursenko, A. A.) The global iteration method for computation of mixed flows of a viscous gas. (Russian) **85g:76006**
- Marching method of calculation of flows of a viscous gas in channels. (Russian) **85h:76009**
- Yanenko, N. N. See Rozhddestvenskiĭ, B. L., **85f:35127**
- 76P05 Rarefied gas flows, Boltzmann equation [See also 82A05.]**
- Arkeryd, Leif Asymptotic behaviour of the Boltzmann equation with infinite range forces. **85d:76020**
- Loeb solutions of the Boltzmann equation. **85m:76047**
- Asano, Kiyoshi See Ukai, Seiji, **85a:76079** and **85j:76034**
- Blaeser, A. M. (with Rykov, V. A.) The H-theorem and the Onsager principle for the stationary Boltzmann equation. (Russian) **85c:76051**
- Cornille, H. (with Gervois, A.; Protopenescu, V.) Closed similarity solutions for a class of stationary nonlinear Boltzmann-like equations. **85h:76033a**
- (with Gervois, A.; Protopenescu, V.) Corrigendum: "Closed similarity solutions for a class of stationary nonlinear Boltzmann-like equations". **85h:76033b**
- Elmroth, Tony On the H-function and convergence towards equilibrium for a space-homogeneous molecular density. **85j:76028**
- Ènder, A. Ya. (with Ènder, I. A.) An integral transformation of the Boltzmann equation for Maxwellian molecules. (Russian) **85b:76046**
- Ènder, I. A. See Ènder, A. Ya., **85b:76046**
- Fiasdon, W. (with Palczewski, A.) On some mathematical problems of the nonlinear Boltzmann equation. (Russian and Polish summaries) **85j:76029**
- Geints, A. G. Solvability of the initial-boundary value problem for a nonlinear Boltzmann equation in a bounded domain. (Russian) **85a:76075**
- Gervois, A. See Cornille, H.; et al., **85h:76033a** and **85h:76033b**
- Greenberg, William (with van der Mee, C. V. M.) An abstract approach to evaporation models in rarefied gas dynamics. (Italian summary) **85j:76030**
- Grigor'ev, Yu. N. (with Mikhailitsyn, A. N.) Spectral method of numerical solution of the kinetic Boltzmann equation. (Russian) **85a:76076**
- Khristinich, V. B. Derivation of a chain of approximate kinetic equations on the basis of the method of test functions. (Russian) **85m:76048**
- van der Mee, C. V. M. See Greenberg, William, **85j:76030**
- Mikhailitsyn, A. N. See Grigor'ev, Yu. N., **85a:76076**
- Palczewski, A. Boltzmann equation on a lattice global solution for non-Maxwellian gases. (Russian and Polish summaries) **85d:76021**
- Exact and Chapman-Enskog solutions for the Carleman model. **85j:76031**
- See also Fiasdon, W., **85j:76029**
- Platkowski, Tadeusz Asymptotic expansions and fluid-dynamic approximation of the linearized Boltzmann equation for the Broadwell model. (Russian summary) **85a:76077**
- Discrete velocity models with ternary collisions. **85j:76032**
- Protopenescu, V. See Cornille, H.; et al., **85h:76033a** and **85h:76033b**
- Raines, A. A conservative algorithm for solution of the Boltzmann equation for a gas mixture. (Russian) **85a:76078**
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- I'inakii, N. B. (with Kasimov, A. R.) An inverse problem of filtration from a channel in the presence of backwater. (Russian) **85h:76040**
- (with Nasyrov, S. R.) The problem of determining the underground contour from the back pressure curve in the presence of rectilinear water pressure. (Russian) **85c:76052**
- Ishikawa, Yo Some notes on a compressible liquid flow through a porous medium. **85h:76041**
- Kaplan, A. A. (with Namm, R. V.) On a characteristic of minimizing sequences for the Signorini problem. (Russian) **85f:76102**
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- Korobitsina, Zh. L. The method of fictitious domains for two-phase filtration of immiscible incompressible fluids. (Russian) **85i:76045**
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- Simpkins, P. G. See Daniels, P. G., **85f:76043**
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- Stavre-Stănescu, Ruxandra Fluid flow through a porous medium with variable permeability in which the discharge is unknown. **85m:76063**
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- Tomoeda, Kenji (with Mimura, Masayasu) Numerical approximations for interface curves to a porous media equation. **85c:76054**
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- Wang, Yao Dong See Huang, Shao Yun, **85f:76101** and **85h:76039**
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- Yuan, Yi Rang A class of finite element schemes for numerical simulation of two-phase seepage, and its theoretical analysis. (Chinese) (Not in MR)
- Mathematics of reservoir simulation** ★ The mathematics of reservoir simulation. **85g:76027**

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- Abbasov, A. N. (with Tagiev, F. A.) Investigation of the motion of two-phase fluid in a porous medium by the finite difference method. (Russian) **85h:76042**
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- (with Luckhaus, Stephan) Quasilinear elliptic-parabolic differential equations. **85c:35059**
- Antontsev, S. N. (with Kazhikhov, A. V.; Monakhov, V. N.) ★ Краевые задачи механики неоднородных жидкостей. (Russian) [Boundary value problems of the mechanics of inhomogeneous fluids] **85g:35097**
- Localization of solutions of certain degenerate equations of continuum mechanics. (Russian) **85f:73052**
- Aronson, D. G. (with Caffarelli, Luis A.) The initial trace of a solution of the porous medium equation. **85c:35042**
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- Bedrikovetskii, P. G. (with Kanevskaya, R. D.; Lur'e, M. V.) Compressibility effects in displacement of water and oil by gas. (Russian) **85i:76048**
- di Benedetto, Emmanuele Continuity of weak solutions to a general porous medium equation. **85c:35010**
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- Blumberg, Robin L. See Stanley, H. E.; et al., **85a:82093**
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- Dzhangveladze, T. A. (with Korshiya, T. K.; Khmaladze, Sh. È.) Solvability of a gas filtration problem. (Russian. English and Georgian summaries) **85h:35115**
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- Tomoeada, Kenji (with Mimura, Masayasu) Numerical approximations to interface curves for a porous media equation. **85c:65117**
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- Tsurko, V. A. A difference method for computing throughput in the solution of problems of Verigin's type. (Russian. English and Lithuanian summaries) **85f:65104**
- Ughi, M. Initial values of nonnegative solutions of filtration equation. **85f:35109**
- Van den Broeck, C. (with Maso, R. M.) Exact results for the asymptotic dispersion of particles in  $n$ -layer systems. **85a:82090**
- Vásquez, Juan L. Large time behaviour of the solutions of the one-dimensional porous media equation. **85e:35021**  
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- Abbasov, A. N. (with Tagiev, F. A.) Investigation of the motion of two-phase fluid in a porous medium by the finite difference method. (Russian) **85h:76042**
- Barton, N. G. An asymptotic theory for dispersion of reactive contaminants in parallel flow. **85g:76028**
- Bedrikovetskii, P. G. (with Kanevskaya, R. D.; Lur'e, M. V.) Compressibility effects in displacement of water and oil by gas. (Russian) **85i:76048**
- Cherepanov, G. P. Theory of one-dimensional unsteady transport of heavy particles by a flow of fluid. **85k:76032**
- Durst, F. (with Milojevic, D.; Schönung, B.) Eulerian and Lagrangian predictions of particulate two-phase flows: a numerical study. (Not in MR)
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- Galkin, V. S. (with Makashev, N. K.) Conditions for applicability and molecular-kinetic derivation of equations of multitemperature multivelocity gas dynamics. (Russian) **85a:76092**
- Greenspan, H. P. See Ungarish, M., **85f:76108a** and **85f:76108b**
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- Boileux, Michel See Kerins, John, **85k:82032**
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- Kerins, John (with Boileux, Michel) Applications of Noether's theorem to inhomogeneous fluids. **85k:82032**
- Korobitina, Zh. L. The method of fictitious domains for two-phase filtration of immiscible incompressible fluids. (Russian) **85i:76045**
- Marchuk, G. I. Application of adjoint equations to the solution of problems of mathematical physics. (Russian. English summary) **85e:86007**
- (Meyer, R. E.) See Theory of dispersed multiphase flow, **85d:76002**
- Raines, A. A. A conservative algorithm for solution of the Boltzmann equation for a gas mixture. (Russian) **85a:76078**
- Serrin, James The form of interfacial surfaces in Korteweg's theory of phase equilibria. **85d:76018**

- Shenard, Marshall. See Hagan, Robert Michael, Jr., 85b:70033  
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- Baklanovskaya, V. P. (with Blatov, A. S.; Dauletov, K. Zh.; Dahmagazieva, S. Kh.; Kondrin, A. T.; Chechov, I. I.) Numerical modeling of long surface and internal waves in a closed slowly rotating basin. (Russian) 85b:70033  
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- Albano, S. (with Gonzalez, E. H. A.) Rotating drops. 85b:49077  
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### 76Z99 None of the above, but in this section

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- Adeleke, S. A. On symmetry of shells. 85d:73026
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- De Boer, E. Auditory physics. Physical principles in hearing theory. II. 85k:92076
- Misra, J. C. (with Chakravarty, Santabrata) A poroelastic spheroidal shell model for studying the problem of head injury. 85k:92016

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- Landau, L. D. (with Lifshits, E. M.) ★Теоретическая физика ("Ландау-Лифшиц"). Том VIII. (Russian) [Theoretical physics ("Landau-Lifshits"). Vol. VIII] 85b:78001
- Lifshits, E. M. See Landau, L. D., 85b:78001
- (Pitaevskii, L. P.) See Landau, L. D., 85b:78001

### 78-02 Advanced exposition (research surveys, monographs, etc.)

- И'накш, А. S. (with Slepyan, G. Ya.) ★Колесания и волны в электродинамических системах с потерями. (Russian) [Oscillations and waves in electrodynamic systems with losses] 85b:78002
- Slepyan, G. Ya. See И'накш, А. S., 85b:78002

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- Fushchich, V. I. (with Nikitin, A. G.) ★Симметрия уравнений Максвелла. (Russian) [The symmetry of Maxwell's equations] 85b:78012
- Nikitin, A. G. See Fushchich, V. I., 85b:78012
- Pearson, L. Wilson Present thinking on the use of the singularity expansion in electromagnetic scattering computation. 85a:78023
- Shestopalov, V. P. ★Сумматорные уравнения в современной теории дифракции. (Russian) [Summatory equations in modern diffraction theory] 85i:78023
- Solymar, L. (with Cooke, D. J.) ★Volume holography and volume gratings. 85e:78012

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- Theocharis, T. On Maxwell's ether. 85a:78001

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- Caldirola, P. Dissipation in quantum theory (40 years of research). 85d:81002
- Cantor, Georg Was Thomas Young a wave theorist? 85k:01020
- Costabel, Pierre L. Foucault et H. Fizeau: exploitation d'une information nouvelle. [L. Foucault and H. Fizeau: exploiting new information] 85k:01021
- (Coulomb, Charles Augustin) See Lyubimov, Yu. A., 85m:01023
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- (Foucault, Léon) See Costabel, Pierre, 85k:01021
- Hill, Robert Nyden The origins of predictive relativistic mechanics. 85f:01021
- Home, R. W. Poisson's memoirs on electricity: academic politics and a new style in physics. 85e:01022
- (Hughes, D. E.) See Jordan, D. W., (Not in MR)
- Ionescu-Pallas, Nicholas Jean See Liviu, Sofonea, (Not in MR)
- Jordan, D. W. D. E. Hughes. Self-induction and the skin-effect. (Not in MR)
- Liviu, Sofonea (with Ionescu-Pallas, Nicholas Jean) New connections between classical mechanics and electrodynamics. (Romanian summary) (Not in MR)
- (Lorentz, Hendrik Antoon) See Schröder, Wilfried, 85k:01037
- Lyubimov, Yu. A. The memoirs of Coulomb—the beginning of modern electromagnetism. (Russian. English summary) 85m:01023
- (Poisson, Siméon Denis) See Home, R. W., 85e:01022
- Schröder, Wilfried Hendrik Antoon Lorentz and Emil Wiechert (Briefwechsel und Verhältnis der beiden Physiker). [Hendrik Antoon Lorentz and Emil Wiechert (correspondence and relationship of the two physicists)] 85k:01037
- Solov'ev, A. A. A discussion of the choice of interaction laws for elementary currents. (Russian. English summary) (See 84b:01001)
- Spotorno, Bruno A mathematical model for a theory of color. (Italian) 85a:01034
- Starik, V. G. Paths in the development of Faraday-Maxwell electrodynamics. (Ukrainian. Russian summary) 85m:01035
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- Poisson, Siméon Denis See Home, R. W., 85e:01022
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- Lorentz, Hendrik Antoon-Wiechert, Emil See Schröder, Wilfried, 85k:01037

# 78-04 Explicit machine computation and programs (not the theory of computation or programming)

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 Chandeson, J. See Amri, Abdelkader; et al., 85a:78025  
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 Lindell, Ismo V. (with Alanen, Eero) Exact image theory for the Sommerfeld half-space problem. I. Vertical magnetic dipole. 85d:78007

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- Phillips, Timothy N. Numerical solution of a coupled pair of elliptic equations from solid state electronics. 85b:85096

# 78-06 Proceedings, conferences, etc.

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 (I'inskii, A. S.) See Mathematical models of applied electrodynamics, 85m:78001

## Conference:

- Antennas and propagation ★Third international conference on antennas and propagation: ICAP 83. Part 1. 85a:78002  
 Mathematical models of applied electrodynamics ★Математические модели прикладной электродинамики. (Russian) [Mathematical models of applied electrodynamics] 85m:78001  
 Swindon ★Third international conference on antennas and propagation: ICAP 83. Part 1. 85a:78002

# 78-08 Computational methods

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- Belinskii, S. P. A formulation of an inverse problem for the system of Maxwell equations. (Russian) **85k:35225**
- Blanco, R. (with Pesquera, L.; Santos, Emilio) Equilibrium between radiation and matter for classical relativistic multiperiodic systems. II. Study of radiative equilibrium with Rayleigh-Jeans radiation. **85m:82057**
- Datta, Somnath Multiple expansion of the interaction Hamiltonian between a charged particle and a nonuniform magnetic field. (French summary) **85k:78012**
- Driver, R. D. A mixed neutral system. **85k:34160**
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- Pradkin, E. S. (with Kozhevnikov, A. A.; Pal'chik, M. Ya.; Pomeranskii, A. A.) Maxwell equations in conformal invariant electrodynamics. **85k:81212**
- Fushchich, V. I. (with Vladimirov, V. A.) On the new conservation laws for vector field equations. **85e:81064** (with Nikitin, A. G.) New and old symmetries of the Maxwell and Dirac equations. **85e:81063**
- Gordesiani, D. G. (with Dzhangveladze, T. A.; Korshiya, T. K.) A class of nonlinear parabolic equations that arise in problems of the diffusion of an electromagnetic field. (Russian. English and Georgian summaries) **85b:35125**
- Jackson, E. Atlee Radiation reaction dynamics in an electromagnetic wave and constant electric field. **85i:78007**
- Janovsky, Vladimir (with Marek, Ivo; Neuberger, J.) Maxwell's equations with incident waves as a field source. **85d:35104**
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Brackbill, J. U. (with Goldman, S. R.) Magnetohydrodynamics in laser fusion: fluid modeling of energy transport in laser targets. 85c:82046

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Hanggi, Peter (with Grabert, Hermann; Talkner, Peter; Thomas, Harry) Bistable systems: master equation versus Fokker-Planck modeling. 85g:81233

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78A97 Mathematically heuristic optics and electromagnetic theory (must also be assigned at least one other classification number in this section)

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#### 78A99 Miscellaneous topics

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## 80-XX CLASSICAL THERMODYNAMICS, HEAT TRANSFER (For thermodynamics of solids, see 73B30.)

#### secondary classifications (80-XX)

Petrov, I. I. Identification of a hyperbolic system. (Bulgarian. English and Russian summaries) (Not in MR)

## 80-01 Elementary exposition; textbooks

Owen, David Ross ★ A first course in the mathematical foundations of thermodynamics. 85m:80001

## 80-02 Advanced exposition (research surveys, monographs, etc.)

- Rubia, A. B. ★ Термодинамика биологических процессов. (Russian) [The thermodynamics of biological processes] 85h:80001  
(Shinkarev, V. P.) See Rubia, A. B., 85h:80001

## secondary classifications (80-02)

- Kapila, A. K. ★ Asymptotic treatment of chemically reacting systems. 85f:80020  
(Kontorov, D. S.) See Sedov, E., 85j:00015  
Sedov, E. ★ Одна формула и весь мир. (Russian) [One formula and the whole world] 85j:00015

## 80-03 Historical (must also be assigned at least one classification number from Section 01)

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- Bierhalter, Günter Zu Sullys Versuch einer mechanischen Grundlegung des zweiten Hauptsatzes der Thermodynamik. [On Sully's attempt of a mechanical foundation of the second law of thermodynamics] 85b:01017  
Die v. Helmholtzschen Monozykkel-Analogien zur Thermodynamik und das Clausiusche Disagregationskonzept. [The von Helmholtz's monozycle analogs to thermodynamics and the disaggregation concept of Clausius] 85j:01018  
(Boltzmann, Ludwig) See Flamm, D., 85c:01046  
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- Vasil'eva, A. B. (with Gorshkova, O. N.) A singularly perturbed problem of chemical kinetics. (Russian) **85h:35109**
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- 80A32 Chemically reacting flows [See also 92A09, 92A40.]
- Avnir, David (with Farin, Dina; Pfeifer, Peter) Chemistry in noninteger dimensions between two and three. II. Fractal surfaces of adsorbents. **85d:80010b**
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- Bellman, Richard E. (with Bentsman, Joseph; Meerkov, S. M.) Vibrational control of systems with Arrhenius dynamics. **85b:80023**
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- Cartiani, Dan Cooperational phenomena in dissipative systems far from thermodynamic equilibrium. Bifurcation of reaction-diffusion systems. (Romanian. English summary) **85b:80024**
- Clarke, Bruce L. Qualitative dynamics and stability of chemical reaction networks. (See **85g:92023**)
- Dorokhov, I. N. See Kafarov, V. V.; et al., **85f:80029**
- Farin, Dina See Avnir, David; et al., **85d:80010b**
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- Gripenberg, Gustaf Stability analysis of a distributed parameter model for the growth of micro-organisms. (Russian) **85j:80004**
- Gupalo, Yu. P. (with Ostrik, V. M.) On stationary conditions of work of chemical reactors with longitudinal and transverse mixing. **85c:80013**
- Hallager, Louis (with Goldschmidt, Lars; Jørgensen, Sten Bay) Multivariable adaptive identification and control of a distributed chemical reactor. (Not in MR)
- Hill, James M. Some unusual unsolved integral equations for moving-boundary diffusion problems. **85g:80009**
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- Kafarov, V. V. (with Dorokhov, I. N.; Kol'tsova, E. M.; Le Suan Khal) Spatial averaging method for description of polydisperse systems based on generalization of an integral formula depending on a parameter. (Russian) **85f:80029**
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- Malek Mansour, M. (with Van den Broeck, C.) Inhomogeneous fluctuations in reaction-diffusion systems. **85k:80017**
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- Rubinstein, I. Asymptotic front formation in equilibrium reaction-diffusion kinetics. (See **85k:00008**)
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- Sinanoglu, Oktay See Fernández, Ariel, **85f:80027**
- Stakgold, I. Gas-solid reactions. **85e:80008**
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- Barton, N. G. An asymptotic theory for dispersion of reactive contaminants in parallel flow. **85g:76028**
- Bellman, Richard E. See Naadimuthu, G.; et al., **85c:85157**
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- Burnell, J. G. (with Lacey, A. A.; Wake, G. C.) Steady states of the reaction-diffusion equations. II. Uniqueness of solutions and some special cases. **85g:35070**

- Erneux, Thomas (with Reiss, Edward L.) Singular secondary bifurcation. 85j:59041
- Fernandes, Ariel (with Sinanoğlu, Oktay) Symmetry-breaking instabilities under nonclassical bifurcation conditions. 85f:58084
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- Hicks, D. L. Microstructural models for immiscible mixtures: mathematical modeling methods. (See 85g:93006)
- Hindmarsh, Alan C. See Johnson, S. H., 85b:80001
- Holm, Darryl D. (with Logan, J. David) Self-similar detonation waves. 85e:76058
- Hudson, J. L. (with Mankin, J. C.; Rönsler, O. E.) Chaos in continuous stirred chemical reactors. (See 85b:58003)
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- Kubček, Milan (with Stuchl, Ivan; Marek, Miloš) Erratum: "Isolas' in solution diagrams" [J. Comput. Phys. 48 (1982), no. 1, 106–116; MR 84f:58091]. 85f:58089
- Lacey, A. A. See Burnell, J. G.; et al., 85g:35070
- Larter, R. The use of sensitivity analysis in determining the structural stability of multiparameter oscillators. (See 85g:92023)
- Lee, E. S. See Naadimuthu, G.; et al., 85c:65157
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## 80A50 Chemistry (general)

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- Polansky, Oskar E. Relations between the roots of the acyclic and the characteristic polynomials of Hückel and Möbius cycles—eigenvalues of certain Hückel and Möbius forms of polyacenes. 85b:15040
- Schnater, Peter Karl Selection and evolution in molecular systems. (See 85g:92003)

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- Shukov, V. A. The problem of randomness in the work of Max Born. (Russian) (Not in MR)

## 81-XX QUANTUM MECHANICS

## 81-00 Handbooks, dictionaries, and other reference works

- Dirac, Paul Adrien Maurice ★ Пути физики. (Russian) [Directions in physics] 85e:81001
- (Smorodinskaya, N. Ya.) See Dirac, Paul Adrien Maurice, 85e:81001
- (Smorodinskii, Ya. A.) See Dirac, Paul Adrien Maurice, 85e:81001

## 81-01 Elementary exposition; textbooks

- Berezin, F. A. (with Shubin, M. A.) ★ Уравнение Шредингера. (Russian) [The Schrödinger equation] 85m:81001
- Blum, K. ★ Теория матрицы плотности и ее приложения. (Russian) [Density matrix theory and applications] 85i:81001
- Dawber, P. G. See Elliott, James Philip, 85k:81002a and 85k:81002b
- Duffy, George H. ★ A development of quantum mechanics. 85k:81001

- Elliott, James Philip (with Dawber, P. G.) ★ Симметрия в физике. Том 1. (Russian) [Symmetry in physics. Vol. 1] 85k:81002a
- (with Dawber, P. G.) ★ Симметрия в физике. Том 2. (Russian) [Symmetry in physics. Vol. 2] 85k:81002b
- Kushnirenko, A. N. ★ Введение в квантовую теорию поля. (Russian) [Introduction to quantum field theory] 85d:81001
- (Novikov, M. Yu.) See Blum, K., 85i:81001
- Rajaraman, R. ★ Solitons and instantons. 85i:81002
- Rudiy, Yu. G. See Blum, K., 85i:81001
- Shubin, M. A. See Berezin, F. A., 85m:81001
- (Slavov, D. A.) See Elliott, James Philip, 85k:81002a and 85k:81002b
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- Buchwalter, Henri (with Tarral, D.) Théorie spectrale. [Spectral theory] 85c:47001
- (Hein, Carl A.) See Ludwig, Günther, 85g:81014
- Ludwig, Günther ★ Foundations of quantum mechanics. I. 85g:81014
- Tarral, D. See Buchwalter, Henri, 85c:47001

## 81-02 Advanced exposition (research surveys, monographs, etc.)

- (Chulaevskii, V. A.) See Glimm, James, 85g:81001
- Glimm, James (with Jaffe, Arthur) ★ Математические методы квантовой физики. (Russian) [Mathematical methods of quantum physics] 85g:81001
- (Gusev, E. V.) See Glimm, James, 85g:81001
- Harthong, Jacques ★ Études sur la mécanique quantique. (French) [Studies in quantum mechanics] 85i:81003
- Itzykson, Claude (with Zuber, Jean-Bernard) ★ Квантовая теория поля. Том 1. (Russian) [Quantum field theory. Vol. 1] 85k:81003a
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- Jaffe, Arthur See Glimm, James, 85g:81001
- Kamefuchi, S. See Ohnuki, Y., 85b:81001
- (Khanin, K. M.) See Glimm, James, 85g:81001
- (Minlos, R. A.) See Glimm, James, 85g:81001
- (Mir-Kasimov, R. M.) See Itzykson, Claude, 85k:81003a and 85k:81003b
- Ohnuki, Y. (with Kamefuchi, S.) ★ Квантованные поля в искривленном пространстве-времени. (Russian) [Quantum fields in curved space-time] 85e:81096
- U'yanov, V. V. ★ Интегральные методы в квантовой механике. (Russian) [Integral methods in quantum mechanics] 85e:81002
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- Balaban, Tadeusz Ultraviolet stability in field theory. The  $\varphi_3^2$  model. (See 85d:82004)
- Birrell, N. (with Davies, P. C. W.) ★ Квантованные поля в искривленном пространстве-времени. (Russian) [Quantum fields in curved space-time] 85e:81096
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- Bogolyubov, N. N. (with Shirkov, D. V.) ★ Quantum fields. 85g:81096
- Bose, Subir Kumar (with Tripathy, D. N.) Studies of coupled anharmonic oscillator problem using coherent states and path integral approaches. 85b:81034
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- Economou, Eleftherios N. ★ Green's functions in quantum physics. 85b:82001
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- Forger, Michael Nonlinear sigma models on symmetric spaces. (See 85d:58001)
- (Gal'tsov, D. V.) See Birrell, N., 85e:81096
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- Kholevo, A. S. ★ Вероятностные и статистические аспекты квантовой теории. (Russian) [Probabilistic and statistical aspects of quantum theory] 85i:81038b
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- (Pontecorvo, D. B.) See Bogolyubov, N. N., 85g:81096
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- Simon, Barry Almost periodic Schrödinger operators: a review. 85d:34030
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Caldirola, P. Dissipation in quantum theory (40 years of research). 85d:81002  
Kragh, Helge Equation with the many fathers. The Klein-Gordon equation in 1926. 85e:81004  
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Beller, Mara Matrix theory before Schrödinger: philosophy, problems, consequences. 85e:01030  
(Boltzmann, Ludwig) See Koch, Martin, 85k:01025  
(Born, Max) See Zajac, Rudolf, (Not in MR)  
de Broglie, Louis ★ Les incertitudes d'Heisenberg et l'interprétation probabiliste de la mécanique ondulatoire. (French) [Heisenberg uncertainty and the probabilistic interpretation of wave mechanics] 85d:81005  
Danin, D. S. ★ Probabilities of the quantum world. 85a:00025  
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(Falke, Gerold) See Memorial issue: Heisenberg, Werner, 85f:01026  
Fine, Arthur What is Einstein's statistical interpretation, or, is it Einstein for whom Bell's theorem tolls? 85m:81008  
(Glebov, Oleg) See Danin, D. S., 85a:00025  
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Hawking, S. W. ★ Is the end in sight for theoretical physics? 85e:01035  
(Heisenberg, Werner) See Memorial issue: Heisenberg, Werner, 85f:01026  
Hill, Robert Nyden The origins of predictive relativistic mechanics. 85f:01021  
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- Caldeira, A. O. (with Leggett, A. J.) Path integral approach to quantum Brownian motion. 85i:2037
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- Friedberg, R. (with Lee, T. D.) Discrete quantum mechanics. 85b:81004
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- Gamboa Saravi, R. E. (with Schaposnik, F. A.; Solomin, J. E.) Path-integral measure and anomalies for left-handed fermions. 85b:81119  
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- Hall, Richard L.** A geometrical theory of energy trajectories in quantum mechanics. **85c:81106**
- Hussein, Md. Iman** The spin-isospin states in SU(3) representations. **85b:81080**
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- Chu, Lian Yuan (with Cai, Ren Tai) A modification of the method for solving the Faddeev equations. **85c:81047**
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- Nam, Kiwon (with Moravcsik, Michael J.) General transformation matrix for Dirac spinors and the calculation of spinorial amplitudes. **85g:81193**
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- Polivanov, M. K. See Medvedev, B. V.; et al., **85f:81066**
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- Andrianov, A. A. (with Borisov, N. V.; Ioffe, M. V.) The factorization method and quantum systems with equivalent energy spectra. **85m:81024**
- Borisov, N. V. See Andrianov, A. A.; et al., **85m:81024**
- Coester, F. Forms of relativistic quantum dynamics (particles vs. fields). **85b:81277a**
- Ferreira, L. S. See Albeverio, S.; et al., **85b:81236**
- Ferrell, T. L. See Ferrell, W. R.; et al., **85i:81052**
- Ferrell, W. R. (with Ritchie, R. H.; Ferrell, T. L.) Identical particle states and operators and the case of two-electron scattering. **85i:81052**
- Gadella, M. Construction of rigged Hilbert spaces to describe resonances and virtual states. **85j:47020**
- Gesztesy, F. See Albeverio, S.; et al., **85b:81236**
- Grisaru, M. T. (Super)gravity in the complex angular momentum plane. (See **85g:83004**)
- Høegh-Krohn, R. See Albeverio, S.; et al., **85b:81236**
- Ioffe, M. V. See Andrianov, A. A.; et al., **85m:81024**
- Iyer, V. P. See Sharma, L. K.; et al., **85a:81019**
- Keserashvili, R. Ya. Elastic three-body to three-body scattering in the hyperspherical formalism. **85d:81170**
- King, Marcia J. Classical relativistic constituent particles and composite-particle scattering. **85f:70030**
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- Lüscher, M. On a relation between finite size effects and elastic scattering processes. (See **85m:81003**)
- Mehta, Shelly See Sharma, L. K.; et al., **85a:81019**
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- Tataru-Mihal, P. On the space-time content of Liouville-type theories. **85g:81213**

## 81F30 Dispersion theory, dispersion relations

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- Chubarov, M. S. See Vernov, Yu. S.; et al., **85i:81123**
- Mnatsakanova, M. N. See Vernov, Yu. S.; et al., **85i:81123**
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- (with Arep'ev, Yu. D.) Tunnel transitions and vacuum polarisation in the potential well under the influence of an electric field. **85g:81194b**
- Rasche, G. See Nenciu, G., **85i:81122**
- Vernov, Yu. S. (with Mnatsakanova, M. N.; Chubarov, M. S.) Strict upper bounds on integrals of scattering amplitude. (Russian. English summary) **85i:81123**

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- Kupch, J. Strong coupling problems of S-matrix equations. **85i:81121**

## 81F99 None of the above, but in this section

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- Frigerio, A. See Alicki, Robert, **85b:81203**
- Hodges, A. P. Twistor diagrams and massless Møller scattering. **85j:81082a**
- Twistor diagrams and massless Compton scattering. **85j:81082b**
- Light, J. C. See Lill, J. V.; et al., **85b:81204**
- Lill, J. V. (with Schnalz, T. G.; Light, J. C.) Imbedded matrix Green's functions in atomic and molecular scattering theory. **85b:81204**
- Sabatier, P. C. Rational reflection coefficients and inverse scattering on the line. (Italian and Russian summaries) **85k:81161**
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- Fokas, A. S. (with Ablowitz, M. J.) On the inverse scattering and direct linearizing transforms for the Kadomtsev-Petviashvili equation. **85b:35052**
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- Levi, D. (with Ragnisco, O.; Sym, A.) Some remarks on the normalisation condition problem of the dressing method. **85d:35098**
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- Mignani, R. Do cross-sections get modified in nonpotential scattering theory? **85m:81022**
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## 81Gxx Particle physics (this covers all kinds of particles and interactions)

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- Ahmed, Shafigue Twisted causal photon propagator and associated mixed field singular functions. (Not in MR)
- Arodí, H. On classical chromodynamics of external charges and fields. **85b:81205**
- On perturbative solution of classical Yang-Mills equations with external charges. **85i:81124**
- Badalyan, A. M. Constant fields and invariants in SU(2) gauge theory. **85g:81195**
- Balachandran, A. P. (with Nair, V. P.; Panchapakesan, N.; Rajeev, S. G.) Low-mass solitons from fractional charges in quantum chromodynamics. (Not in MR)
- Balog, J. (with Hráskó, P.) Fermion boundary condition and  $\theta$  angle. (See **85m:81005**)
- van Beveren, E. See Dullemond, C.; et al., **85g:81196**
- Brower, Richard C. Discrete quantum chromodynamics: a pedagogical introduction to Euclidean lattice gauge theory. (See **85g:81004**)
- Callan, Curtis G., Jr. (with Witten, E.) Monopole catalysis of skyrmion decay. **85d:81173**
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- Christ, N. H. QCD on a random lattice. (See **85g:81003**)
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- Duan, Yi Shi See Zhao, Shu Cheng, **85k:81105**
- Dullemond, C. (with Rijken, T. A.; van Beveren, E.) Quark-gluon model with conformal symmetry. (Italian and Russian summaries) **85g:81196**
- Espriu, D. Chiral symmetry breaking and static gauge fields. **85i:81126**



- Fabricius, K. (with Korthals-Altes, C. P.) Twisted large- $N$  fields at high temperature. 85g:81197
- Fayyazuddin (with Riazuddin) Unification of electromagnetism with strong interactions. (Not in MR)
- Gambini, R. (with Trias, A.) On confinement in pure Yang-Mills theories. 85f:81067
- Gasser, J. (with Leutwyler, H.) Chiral perturbation theory to one loop. 85m:81133
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- Hamber, Herbert W. Hadrons and quarks in lattice QCD. (See 85f:00012)
- Hou, Bo Yu See Wang, Pei; et al., (Not in MR)
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- Hraskó, P. See Balog, J., (85m:81005)
- Jing, Si Cong See Ruan, Tu Nan; et al., 85e:81123
- Kashov, V. A. Connection between quantum chromodynamics and a free string on a lattice. 85k:81163
- Kogut, John B. A statistical mechanics view of quantum chromodynamics: lattice gauge theory. 85g:81196
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- Mandula, Jeffrey E. (with Zweig, George; Govaerts, Jan) Representations of the rotation reflection symmetry group of the four-dimensional cubic lattice. 85m:81133
- (with Zweig, George; Govaerts, Jan) Covariant lattice glueball fields. 85m:81134
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- Parisi, G. Prolegomena to any future computer evaluation of the QCD mass spectrum. (See 85m:81003)
- Rajeev, S. G. See Balachandran, A. P.; et al., (Not in MR)
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- Schlereth, H. Rotation-invariant regularization of quantum chromodynamics in strong coupling. (See 85m:81005)
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- Sucher, J. See Hardekopf, G., 85g:81222
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- Tremi, T. F. (with Nuttall, J.; Vatsya, S. R.) Existence of resonances in a class of absorptive potentials. 85i:81143
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- Zumbach, G. (with Maschke, Klaus) New approach to the calculation of density functionals. 85b:81085a



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- Abbott, P. C. (with Maslen, E. N.) Expansion of two-body potentials in hyperspherical harmonics. 85g:81020
- Bessis, G. See Bessis, N.; et al. 85g:81149
- Bessis, N. (with Bessis, G.; Roux, D.) Atomic fine-structure calculations in a space of constant negative curvature. 85g:81149
- Blum, K. ★ Теория матрицы плотности и ее приложения. (Russian) [Density matrix theory and applications] 85i:81001
- Davidson, Russell (with Kozak, John J.) Exact dynamics of a model for a three-level quantum system interacting with a continuous spectrum. 85d:81200
- Davies, Ian (with Truman, Aubrey; Williams, David) Classical periodic solution of the equal-mass 2n-body problem, 2n-ion problem and the n-electron atom problem. 85a:70020
- Davis, C. L. (with Maslen, E. N.; Varghese, J. N.) On exact analytical solutions for the few-particle Schrödinger equation. I. A perturbation study. 85c:81006a
- (with Maslen, E. N.) On exact analytical solutions for the few-particle Schrödinger equation. II. The ground state of helium. 85c:81006b
- Haftel, M. L. (with Mandelzweig, V. B.) Exact solution of coupled equations and the hyperspherical formalism: calculation of expectation values and wavefunctions of three Coulomb-bound particles. 85d:81145
- Hasegawa, Hiroshi See Lakshmanan, M. 85m:81071
- Heffer, E. F. Inverse methods and solitons in nonrelativistic quantum mechanics. 85g:81019
- Hill, Robert Nyden On the analytic structure of the wave function for a hydrogen atom in an analytic potential. 85k:81032
- Kozak, John J. See Davidson, Russell. 85d:81200
- Kuruoglu, Zeki C. (with Micha, David A.) Collision dynamics of three interacting atoms: the Faddeev equations in a diabatic electronic basis. 85d:81167
- Lakshmanan, M. (with Hasegawa, Hiroshi) On the canonical equivalence of the Kepler problem in coordinate and momentum spaces. 85m:81071
- Mandelzweig, V. B. See Haftel, M. L. 85d:81165
- Maslen, E. N. See Davis, C. L.; et al. 85c:81006a; 85c:81006b and Abbott, P. C., 85g:81020
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- Dirl, R. See Altmann, S. L., 85j:81096
- Jarvis, P. D. (with Stedman, G. E.) Supersymmetry in Jahn-Teller systems. 85d:81195
- Johnson, B. R. The classical dynamics of three particles in hyperspherical coordinates. 85d:81196a
- The quantum dynamics of three particles in hyperspherical coordinates. 85d:81196b
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- Loete, M. Développement complet du moment dipolaire des molécules tétraédriques. Application aux bandes triplement dégénérées et à la diade  $\nu_2$  et  $\nu_4$ . (English summary) [Complete development of the dipolar moment of tetrahedral molecules. Application to triply degenerate bands and to the dyad  $\nu_2$  and  $\nu_4$ ] 85b:81246
- Reid, Michael F.  $3jm$  factors and basis functions for  $D_{\text{occ}}$  and  $C_{\text{occ}}$ . 85c:81195
- Stedman, G. E. See Jarvis, P. D., 85d:81195
- Wulfman, C. E. (with Levine, R. D.) A unified algebraic approach to bound and continuum states of anharmonic potentials. 85b:81247
- Živković, Tomislav P. Symmetry properties of the configuration interaction space in relation to one- and two-particle operators: the splitting theorem. 85k:81190

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- Aldinger, R. R. (with Böhm, A.; Kielanowski, P.; Loewe, M.; Magnollay, P.; Mukunda, N.; Drechsler, Wolfgang; Komy, S. R.) Relativistic rotator. I. Quantum observables and constrained Hamiltonian mechanics. 85e:81051a
- Balster, G. J. (with van Roosmalen, O. S.; Dieperink, A. E. L.) Representation matrices for  $U(4)$ . 85d:81053
- Biedenharn, L. C. See Böhm, A.; et al. 85e:81051b
- Birman, J. L. See Solomon, Allan L., 85i:82054
- Böhm, A. (with Loewe, M.; Biedenharn, L. C.; van Dam, H.) Relativistic rotator. II. The simplest representation spaces. 85e:81051b
- See also Aldinger, R. R.; et al. 85e:81051a
- van Dam, H. See Böhm, A.; et al. 85e:81051b
- Dieperink, A. E. L. See Balster, G. J.; et al. 85d:81053
- Drechsler, Wolfgang See Aldinger, R. R.; et al. 85e:81051a
- Kielanowski, P. See Aldinger, R. R.; et al. 85e:81051a
- Klein, D. J. Semiregular induction of group representations. 85g:20019

- Komy, S. R. See Aldinger, R. R.; et al. 85e:81051a
- Loewe, M. See Aldinger, R. R.; et al. 85e:81051a and Böhm, A.; et al. 85e:81051b
- Lulek, B. (with Lulek, T.) Irreducible bases of induced representations of finite groups. 85m:20016
- Lulek, T. See Lulek, B., 85m:20016
- Magnollay, P. See Aldinger, R. R.; et al. 85e:81051a
- Mukunda, N. See Aldinger, R. R.; et al. 85e:81051a
- van Roosmalen, O. S. See Balster, G. J.; et al. 85d:81053
- Solomon, Allan L. (with Birman, J. L.) Dynamical group model of a spin density wave system. 85i:82054
- Villars, Felix M. H. Nuclear collective motion and the Born-Oppenheimer approximation. 85d:81188
- Wen, Zhen Yi A new approach for calculating the matrix elements of unitary group generator products. (Chinese. English summary) 85d:22042

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- Avram, N. M. See Drăgănescu, Gh. E.; et al. 85k:81197
- Bader, R. F. W. A theory of molecular structure. (See 85g:92023)
- Blaise, Paul (with Naï, Madjid; Henri-Rousseau, Olivier) Considérations topologiques concernant les équations séculaires des systèmes  $\pi$  des polyènes linéaires. (English summary) [The topological aspect of the secular equations involved in the  $\pi$  molecular orbitals of linear polyenes] 85a:81137
- Brishik, L. S. (with Davydov, A. S.) Soliton excitations in one-dimensional molecular systems. (German summary) 85a:81136
- Cal, Rui Ying A method for calculating complex Mössbauer spectra: the Gauss-Newton method with a correction factor. (Chinese) (Not in MR)
- Davydov, A. S. (with Zolotaryuk, O. V.) Electrons and excitons in nonlinear molecular chains. 85a:81139
- See also Brishik, L. S., 85a:81138
- Drăgănescu, Gh. E. (with Avram, N. M.; Popov, D.) The matrix elements of the coordinate for Morse oscillator. 85k:81197
- Dyall, K. G. (with Grant, I. P.; Wilson, S.) Matrix representation of operator products. 85b:81245
- Easer, M. Role of time-reversal symmetry in the graphical representation of Gelfand basis sets within the relativistic CI approach. 85k:81198
- Faddeev, M. D. See Pavlov, B. S., 85m:81150
- Feng, Xing Hong (with Yang, Zhong Zhi; Tang, Ao Qing) A problem on energy spectra of conjugate molecules having repeated units. (Chinese)
- Fletcher, Roger The self-consistent field problem. 85m:81140
- Gomes, J. A. N. F. Topology of the electronic current density in molecules. 85a:81140
- Grant, I. P. See Dyall, K. G.; et al. 85b:81245
- Henri-Rousseau, Olivier See Blaise, Paul; et al. 85a:81137
- Jolicard, Georges Semiclassical collision theory within the Feynman path-integral formalism: the perturbed stationary state formulation. 85b:81249
- Kent, R. D. See Lev, A.; et al. 85k:81199
- King, R. Bruce The bonding topology of polyhedral molecules. (See 85g:92023)
- Klaus, Martin On  $H_2^+$  for small internuclear separation. 85b:81250
- Krestnikov, S. E. A new method of calculation of generalized multicenter single-electron integrals. (Russian) 85g:81226
- Lev, A. (with Schlesinger, Mordechai; Kent, R. D.) Iterative method for evaluating the matrix representation of the generators in the unitary-group approach. 85k:81199
- Marcus, R. A. See User, T., 85m:81151
- McGlinchey, M. J. (with Tal, Yoram) The shapes of main group clusters: a topological approach to skeletal electron counting. (See 85g:92023)
- Messey, Paul G. Reaction topology: manifold theory of potential surfaces and quantum chemical synthesis design. (See 85g:92023)
- Naï, Madjid See Blaise, Paul; et al. 85a:81137
- Pavlov, B. S. (with Faddeev, M. D.) A model of free electrons and the scattering problem. (Russian. English summary) 85m:81150
- Popov, D. See Drăgănescu, Gh. E.; et al. 85k:81197
- Primorac, M. Molecular integrals over partially generalised Hermite-Gaussian functions. 85k:81200
- Schlesinger, Mordechai See Lev, A.; et al. 85k:81199
- Shi, Shenghua A new semiclassical approach to the molecular dynamics: label variable classical mechanics. 85b:81251
- Tal, Yoram See McGlinchey, M. J., (85g:92023)
- Tang, Ao Qing See Feng, Xing Hong; et al., (Not in MR)
- User, T. (with Marcus, R. A.) Quantization with operators appropriate to shapes of trajectories and classical perturbation theory. 85m:81151
- Wagner, Max Generalised Fulton-Gouterman transformation for systems of abelian symmetry. 85h:81086
- Wilson, S. See Dyall, K. G.; et al. 85b:81245
- Yang, Zhong Zhi See Feng, Xing Hong; et al., (Not in MR)
- Zolotaryuk, O. V. See Davydov, A. S., 85a:81139

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- Alicki, Robert Dynamical violation of the superposition principle for open quantum systems. 85i:82018
- Blum, K. ★ Теория матрицы плотности и ее приложения. (Russian) [Density matrix theory and applications] 85i:81001
- Borghese, F. (with Denti, P.; Saija, R.; Toscano, G.; Sindoni, O. I.) Use of group theory for the description of electromagnetic scattering from molecular systems. 85b:78021
- Chapuisat, Xavier See Nauts, André, 85c:80012
- Child, M. S. See User, T.; et al. 85m:8037
- Daubechies, I. (with Lieb, Elliott H.) One-electron relativistic molecules with Coulomb interaction. 85j:81007
- Dawson, K. A. (with March, N. H.) Slater sum in one dimension: explicit kinetic energy functional. 85m:81146

- Denti, P. See Borghese, F.; et al., 85b:78021
- Dongarra, J. J. (with Gabriel, J. R.; Koelling, D. D.; Wilkinson, J. H.) The eigenvalue problem for Hermitian matrices with time reversal symmetry. 85j:65013
- Essam, J. W. See Gutman, I.; et al., 85a:05029
- Feng, Xing Hong (with Yang, Zhong Zhi; Tang, Ao Qing) Problem on spectra of conjugate molecules having repeated units. 85g:93032
- Gabriel, J. R. See Dongarra, J. J.; et al., 85j:65013
- Gadre, Shridhar R. Information entropy and Thomas-Fermi theory. 85g:81221
- Gutman, I. (with Mallion, R. B.; Essam, J. W.) Counting the spanning trees of a labelled molecular graph. 85a:05029
- Kell, Werner Comment on fractionally charged solitons at finite temperature and chemical potential. 85k:82036
- Koelling, D. D. See Dongarra, J. J.; et al., 85j:65013
- Levine, R. D. See Tabbly, N. Z., 85g:81219
- Lieb, Elliott H. See Deubachis, I., 85j:81007
- Light, J. C. See Lill, J. V.; et al., 85b:81204
- Lill, J. V. (with Schmala, T. G.; Light, J. C.) Imbedded matrix Green's functions in atomic and molecular scattering theory. 85b:81204
- Mallion, R. B. See Gutman, I.; et al., 85a:05029
- March, N. H. See Dawson, K. A., 85m:81146
- Muckerman, J. T. See User, T.; et al., 85m:58037
- Nauta, André (with Chapuisat, Xavier) The description of molecular large-amplitude motions in terms of curvilinear coordinates associated with the reaction path. 85c:80012
- Ni, Guang Jiang (with Su, Ru Keng) An example exhibiting fractional charges. 85m:81029
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- (Rudolf, Yu. G.) See Blum, K., 85i:81001
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- Su, Ru Keng See Ni, Guang Jiang, 85m:81029
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- Thyilwe, Karl-Erik On the complex angular momentum theory of scattering. 85b:81190
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- Toscano, G. See Borghese, F.; et al., 85b:78021
- User, T. (with Muckerman, J. T.; Child, M. S.) Collisions and umbilic catastrophes. The hyperbolic umbilic canonical diffraction integral. 85m:58037
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- Yang, Zhong Zhi See Feng, Xing Hong; et al., 85g:93032
- (Zubarev, D. N.) See Blum, K., 85i:81001

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- Gaudin, Michel ★ La fonction d'onde de Bethe. (French) [The Bethe wave function] 85b:82001

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- Alhassid, Y. See Reinhardt, Hugo; et al., (Not in MR)
- Au, C. K. Global-operator perturbation theory for a self-interacting boson system. 85b:81252
- Balian, R. See Reinhardt, Hugo; et al., (Not in MR)
- Caurier, E. (with Droidi, S.; Ploszajczak, M.) RSVP approach to the quantization and tunneling in multidimensional Hamiltonian systems. (French summary) (Not in MR)
- Dobrokhoto, S. Yu. See Vorob'ev, Yu. M., 85g:81229
- Droidi, S. See Caurier, E.; et al., (Not in MR)
- Engelich, H. (with Englisch, R.) Hohenberg-Kohn theorem and non-V-representable densities. 85f:81082
- Engelich, R. See Englisch, H., 85f:81082
- Fukushima, Kenji See Himi, Masashi, 85k:81202
- Fukutome, Hideo (with Nishiyama, Seiya) Time dependent  $SO(2N+1)$  theory for unified description of Bose and Fermi type collective excitations. 85k:81201
- Himi, Masashi (with Fukushima, Kenji) An application of quantum fluid dynamics. 85k:81202
- Iida, Shinji (with Yamamura, Masatoshi) Utility of the elliptic function for classical  $SU(2)$ -models of nuclear collective motions. 85b:81253
- (with Yamamura, Masatoshi) A schematic model of large amplitude collective motions with an exact classical solution. I. Classical theory of two-level pairing Hamiltonian. 85i:81144
- Keiter, H. (with Morandi, G.) Thermodynamic perturbation theory for systems with strong local correlations. 85j:81097
- Kostomarov, D. P. (with Kukulin, V. I.; Sazonov, P. B.) The discrete generator coordinate method for solving the many-particle Schrödinger equation. (Russian) 85g:81227
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- Majling, L. See Znojil, M., 85b:81256
- Mead, Lawrence R. (with Papanicolaou, N.) Holstein-Primakoff theory for many-body systems. 85g:81228
- Morandi, G. See Keiter, H., 85j:81097
- Müller, A. M. K. Explicit approximate relation between reduced two- and one-particle density matrices. 85j:81098
- Nakamura, Masayoshi On exact canonical momenta of collective motion in a many-boson system. (Italian and Russian summaries) 85c:81053a
- Projection operator method in quantum-mechanical many-particle system. (Italian and Russian summaries) 85c:81053b
- Nenciu, A. (with Nenciu, G.) Dynamics of Bloch electrons in external electric fields. II. The existence of Stark-Wannier ladder resonances. 85b:81254
- Nenciu, G. See Nenciu, A., 85b:81254
- Nishiyama, Seiya See Fukutome, Hideo, 85k:81201
- Papanicolaou, N. See Mead, Lawrence R., 85g:81228
- Petkov, I. Zh. (with Stoitsov, M. V.) The local-scaling transformation method for the ground state of many-particle systems. (Russian. English summary) 85b:81255
- Ploszajczak, M. See Caurier, E.; et al., (Not in MR)
- Reinhardt, Hugo (with Balian, R.; Alhassid, Y.) A geometric approach to dissipation and its application to dissipative nuclear dynamics. (French summary) (Not in MR)
- Sazonov, P. B. See Kostomarov, D. P.; et al., 85g:81227
- Stoitsov, M. V. See Petkov, I. Zh., 85b:81255
- Ureu, Ioan I. Classical limit in the Lipkin model. 85j:81099
- Vorob'ev, Yu. M. (with Dobrokhoto, S. Yu.) Quasiclassical asymptotics for discrete models of electron-phonon interaction: Maslov's method and adiabatic approximation. (Russian. English summary) 85g:81229
- Yamamura, Masatoshi See Iida, Shinji, 85b:81253 and 85i:81144
- Yamasaki, Shuichiro Phonon spectrum of a degenerate system of bosons at finite temperature. 85k:81203
- Znojil, M. (with Majling, L.) Few-body anharmonic oscillators and the matrix continued fractions. 85b:81256
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- Balian, R. (with Bonche, P.; Flocard, H.; Vénéroni, M.) Time-dependent variational principle for predicting the expectation value of an observable. Application to mean field theories. 85b:81026
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- Burton, W. K. See Flessas, George P.; et al., 85g:44009
- Carvalho, Juliana Temes Oliveira See Leblanc, Richard Raymond Henri; et al., 85c:81051
- Castanos, O. (with Chacón, E.; Moshinsky, M.) Analytic expressions for the matrix elements of generators of  $Sp(6)$  in an  $Sp(6) \supset U(3)$  basis. 85b:81079
- Chacón, E. See Castanos, O.; et al., 85b:81079
- Cohen, Thomas D. Study of a Bohr-Mottelson Hamiltonian obtained from an IBM Hamiltonian with the symmetry  $O(6)$ . 85k:81185
- Microscopic nuclear collective motion studied by classical equations of motion. 85b:81189
- Dagotto, Elbio R. (with Soliveres, Carlos E.) Derivation of model Hamiltonians for interacting subsystems of nonidentical particles. 85i:81024
- Dong, Ming De Nonperturbative solution of the Bloch-Mathieu Hamiltonian system. 85a:81025
- Engelich, H. One-dimensional Schrödinger operators with ergodic potential. (German and Russian summaries) 85d:81032
- Feist, Wolfgang See Müller, Eberhard E., 85d:46092
- Feng, Da Hsuan (with Sun, Hong Zhou; Vallières, Michel; Gilmore, R.; Frank, Alejandro; Van Isacker, P.) Dynamical supersymmetry and collective nuclear structure physics. 85g:81216
- Flessas, George P. (with Burton, W. K.; Whitehead, R. R.) On the moment problem for nonpositive distributions. 85g:44009
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- Froelich, Piotr (with Löwdin, Per-Olov) On the Hartree-Fock scheme for a pair of adjoint operators. 85b:47020b
- Gilmore, R. See Feng, Da Hsuan; et al., 85g:81216
- Isosaki, Hiroshi On the existence of solutions of time-dependent Hartree-Fock equations. 85i:81025
- Kramer, P. (with Papadopoulos, Z.; Schweizer, W.) On the theory of collective motion in nuclei. III. From Hamiltonian dynamics to vortex-free fluidity. 85e:81132
- Kuratsuji, Hiroshi (with Suzuki, Tōru) Path integral approach to many-body systems and classical quantization of time-dependent mean field. 85e:81046
- Leblanc, Richard Raymond Henri (with Carvalho, Juliana Temes Oliveira; Rowe, D. J.) A coupled rotor-vibrator model as the macroscopic limit of the microscopic symplectic model. 85c:81051
- Löwdin, Per-Olov On the stability problem of a pair of adjoint operators. 85b:47020a
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- Maschke, Klaus See Zumbach, Gil, 85b:81085a and 85b:81085b
- Moshinsky, M. See Castanos, O.; et al., 85b:81079
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- Zumbach, Gil (with Maschke, Klaus) New approach to the calculation of density functionals. 85b:81085a
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- Belokob, E. D. (with Petrina, D. Ya.) On the connection between the approximating Hamiltonian method and the finite-zone integration method. (Russian. English summary) 85j:81100

- Brasovskii, S. A. (with Dzyaloshinskii, N. E.; Krichever, I. M.) Discrete Peierls models with exact solutions. 85b:81257
- Čápek, V. Solitons, generalized master equations and polaron propagation. 85m:81152
- Dzyaloshinskii, N. E. See Brasovskii, S. A.; et al., 85b:81257
- Fishman, Shmuel (with Grepel, D. R.; Prange, R. E.) Localization in a  $d$ -dimensional incommensurate structure. 85b:81258
- Geller, V. A. (with Margulis, V. A.) Spectrum of the Bloch electron in a magnetic field in a two-dimensional lattice. (Russian. English summary) 85b:81087
- Grepel, D. R. See Fishman, Shmuel; et al., 85b:81258
- Krichever, I. M. See Brasovskii, S. A.; et al., 85b:81257
- Kuriyama, Atsushi (with Yamamura, Masatoshi) Canonical coordinate system suitable for adiabatic treatment of collective motion. General case. 85k:81204
- Margulis, V. A. See Geller, V. A., 85b:81087
- Novitsky, Victor G. A semiclassical approximation for the Wigner distribution function. Application to planar channeling. 85f:81083
- Petrina, D. Ya. See Belokolos, E. D., 85j:81100
- Prange, R. E. See Fishman, Shmuel; et al., 85b:81258
- Thouless, D. J. Quantization of particle transport. 85a:81141
- Yamamura, Masatoshi See Kuriyama, Atsushi, 85k:81204
- Yamasaki, Shuichiro A note on the pair theory of a degenerate system of bosons. 85k:81205
- Zhang, Zhao Qing Random systems with inhomogeneous concentration. (Not in MR)

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- Dana, I. Composite von Neumann lattice. 85g:81092
- Fassari, S. On the Schrödinger operator with periodic point interactions in the three-dimensional case. 85m:81033
- Fukutome, Hideo (with Nishiyama, Seiya) Time dependent  $SO(2N+1)$  theory for unified description of Bose and Fermi type collective excitations. 85k:81201
- Glazkova, N. A. (with Shilkova, N. A.; Shirokovskii, V. P.) Calculation of derivatives of eigenvalues in the Schrödinger problem for a crystal. (Russian) 85k:82044
- Grinberg, Horacio (with Marañon, Julio) Path-integral approach to a finite many-body problem. 85a:81036
- Haldane, F. D. M. Continuum dynamics of the 1-D Heisenberg antiferromagnet: identification with the  $O(3)$  nonlinear sigma model. 85g:82125
- Jarvis, P. D. (with Stedman, G. E.) Supersymmetry in Jahn-Teller systems. 85d:81195
- Levine, Herbert (with Libby, Stephen B.; Pruisken, A. M. M.) Theory of the quantized Hall effect. I, II, III. 85i:82053
- Libby, Stephen B. See Levine, Herbert; et al., 85i:82053
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- (with Thirunamachandran, T.) Quantum electrodynamics with nonrelativistic sources. III. Intermolecular interactions. **85k:81215c**
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- Prance, R. J. See Widom, A.; et al., **85a:81146**
- Sotkov, G. M. (with Stoyanov, D. T.) Conformal quantisation of electrodynamics. **85d:81205**
- Stoyanov, D. T. See Sotkov, G. M., **85d:81205**
- Strocchi, F. See Morchio, G., **85b:81276**
- Thirunamachandran, T. See Power, E. A., **85k:81215a**; **85k:81215b** and **85k:81215c**
- Widom, A. (with Megaloudis, G.; Clark, T. D.; Prance, R. J.; Prance, H.) Quantum electrodynamical formulation of the Josephson tunnelling theory. **85a:81146**
- Zastavenko, L. G. ★ Formulation of Euclidean QED manifestly obeying conditions of gauge, translational, and rotational invariance. **85k:81216**
- Zhang, R. See Delbourgo, R., **85m:81158**
- Zheng, Shi Min A discussion about the ordered product of Gupta. (Chinese. English summary) **85h:81094**
- Zimmermann, Wolfhart On the trace anomaly of the energy-momentum tensor. (See **85g:81008**)
- secondary classifications (**81L05**)
- Anders, Till B. (with Jachmann, Wolfgang) Cross sections with polarized spin- $\frac{1}{2}$  particles in terms of helicity amplitudes. **85c:81046**
- Barducci, A. (with Lusanna, L.) The massive photon in pseudoclassical mechanics. **85a:81124**
- Burzyński, Andrzej (with Siegel, Wojciech) A description of multipole interactions of a system of charged particles with an electromagnetic field. (Polish. English summary) **85g:78004**
- Butera, P. (with Enriotti, M.; Ferrari, R.) Tripole technology. (Italian and Russian summaries) **85b:81089**
- Eckhardt, W. Macroscopic theory of electromagnetic fluctuations and stationary radiative heat transfer. **85b:81049**
- Enriotti, M. See Butera, P.; et al., **85b:81089**
- Ferrari, R. See Butera, P.; et al., **85b:81089**
- Fomin, P. I. See Gusynin, V. P.; et al., **85i:81091**
- Fry, M. P. Bound on the  $N$ th order term of the partition function of the massive Schwinger model. **85m:81109**
- Fushchich, V. I. (with Shtelen, V. M.) On some exact solutions of the nonlinear equations of quantum electrodynamics. **85g:81089**
- Garbaczewski, Piotr On quantum solitons and their classical relatives: reducible quantum fields and infinite constituent "elementary" systems. **85b:81053**
- Graham, Robert (with Höhnherbach, M.) Two-state system coupled to a boson mode: quantum dynamics and classical approximations. **85k:81041**
- Guo, Shuo Hong A self-dual gauge theory. **85d:81104**
- Gusynin, V. P. (with Rusev, D. G.; Fomin, P. I.) An effective Lagrangian two-dimensional electrodynamics with an anomalous moment. (Russian. English summary) **85i:81091**
- Haba, S. Behavior in strong fields of Euclidean gauge theories. II. **85a:81085**
- Haller, Kurt Subsidiary condition for Yang-Mills theory. **85b:81099**
- Heidenreich, W. Quantum theory of spin- $\frac{1}{2}$  fields with gauge freedom. (Italian and Russian summaries) **85k:81136**
- Hillery, Mark (with Mlodinow, Leonard D.) Quantization of electrodynamics in nonlinear dielectric media. **85i:81147**
- Hodges, A. P. Twistor diagrams and massless Møller scattering. **85j:81082a**
- Höhnherbach, M. See Graham, Robert, **85k:81041**
- Huang, Chao Shang. See Zhao, Guang Da, **85j:81059**
- Hughes, Richard J. The effective action for photons in  $(2+1)$  dimensions. **85j:81085**
- Jachmann, Wolfgang. See Anders, Till B., **85c:81046**
- Jourine, Alexander N. Quantum field theory in the infinite temperature limit. **85g:81137**
- Lodder, J. J. A simple model for a symmetrical theory of generalized functions. I. Definition of singular generalized functions. **85g:46047a**
- A simple model for a symmetrical theory of generalized functions. II. Operators on generalized functions. **85g:46047b**
- A simple model for a symmetrical theory of generalized functions. III. Products of generalized functions. **85g:46047c**
- A simple model for a symmetrical theory of generalized functions. IV. Some extensions and conclusions. **85g:46047d**
- A simple model for a symmetrical theory of generalized functions. V. Some applications. **85g:46047e**
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- Mlodinow, Leonard D. See Hillery, Mark, **85i:81147**
- Nakawaki, Yuji Nonexistence of the nontrivial vacuum structure in the Schwinger model. I, II. **85m:81100**
- Neto, J. B. See Smith, A. W., **85g:81212**
- Parker, C. N. Introducing transverse vertices into the gauge technique. **85m:81113**
- Raju, C. K. On the square of  $x^n$ . **85k:46047**
- Redlich, A. N. Parity violation and gauge noninvariance of the effective gauge field action in three dimensions. **85c:81028**
- Rusev, D. G. See Gusynin, V. P.; et al., **85i:81091**
- Shtelen, V. M. See Fushchich, V. I., **85g:81089**
- Siegel, Wojciech. See Burzyński, Andrzej, **85g:78004**
- Smith, A. W. (with Neto, J. B.) Supersymmetric gauge-invariant interaction revisited. (Italian and Russian summaries) **85g:81212**
- Zhao, Guang Da (with Huang, Chao Shang) The negative metric theory for the massive vector meson field. (Chinese. English summary) **85j:81059**

### 81M05 Relativistic theory

- Churikov, V. A. See Èpp, V. Ya., (Not in MR)
- Coester, F. Forms of relativistic quantum dynamics (particles vs. fields). **85b:81277a**
- Relativistic-particle quantum mechanics (applications and approximations). **85b:81277b**
- Èpp, V. Ya. (with Churikov, V. A.) Relativistic harmonic oscillator. (Russian) (Not in MR)
- Ord, G. N. Fractal space-time: a geometric analogue of relativistic quantum mechanics. **85a:81147**

## secondary classifications (81M05)

- Aldinger, R. R. (with Böhm, A.; Kielanowski, P.; Loewe, M.; Magnollay, P.; Mukunda, N.; Drechsler, Wolfgang; Komy, S. R.) Relativistic rotator. I. Quantum observables and constrained Hamiltonian mechanics. 85c:81051a
- Atakishiev, N. M. Quasipotential wave functions of a relativistic harmonic oscillator and the Pollaczek polynomials. (Russian. English summary) 85c:81013
- Barut, A. O. (with Beker, H.) Relativistic oscillator: linearly rising trajectories and structure functions. 85c:81053
- Beker, H. See Barut, A. O., 85c:81053
- Bel, Luis Quantum mechanics of predictive Poincaré-invariant systems. II. Mixed spin  $(\frac{1}{2}, 0)$  two-particle systems. 85g:81009
- Biedenharn, L. C. (with Böhm, A.; Tarlini, M.; van Dam, H.; Mukunda, N.) Spinorial relativistic rotator: the transformation from quasi-Newtonian to Minkowski coordinates. 85j:81023
- See also Böhm, A.; et al., 85c:81051b
- Böhm, A. (with Loewe, M.; Biedenharn, L. C.; van Dam, H.) Relativistic rotator. II. The simplest representation spaces. 85c:81051b
- See also Aldinger, R. R.; et al., 85c:81051a and Biedenharn, L. C.; et al., 85j:81023
- Bordovitsyn, V. A. (with Ternov, I. M.) Invariant determination of relativistic spin states in classical and quantum theory with an external field. (Russian. English summary) 85k:81061
- Brooke, J. A. (with Guz, W.) Relativistic CCRs and the harmonic-oscillator model of elementary particles. (Italian and Russian summaries) 85b:81076
- Relativistic quantum mechanics over stochastic phase space. 85m:81049
- Chylinski, Z. Experimental foundations of relation-spacetime. 85g:81018
- van Dam, H. See Böhm, A.; et al., 85c:81051b and Biedenharn, L. C.; et al., 85j:81023
- Drechsler, Wolfgang See Aldinger, R. R.; et al., 85c:81051a
- Dros-Vincent, Ph. Three-body relativistic wave equations. 85c:81033
- A relativistic discussion on the wave function and classical orbits. 85i:81010
- Éfros, V. D. Generalized partial-wave analysis of three-particle reactions for relativistic kinematics. 85h:81073
- Giovannini, N. Relativistic kinematics and dynamics: a new group theoretical approach. 85f:81006
- Grelland, Hans H. Classical limit of a relativistic quantum system. 85k:81054
- Guz, W. See Brooke, J. A., 85b:81076
- Haag, R. Local relativistic quantum physics. (See 85f:00012)
- Han, D. (with Kim, Y. S.; Son, D.) Massless composite particles and space-time description of gauge transformations. 85d:81071
- Henneaux, M. (with Teitelboim, Claudio) Relativistic quantum mechanics of supersymmetric particles. 85h:81034
- Herdegen, A. A model of relativistic quantum mechanics. 85d:81060
- Ioannidou, H. Explicit derivation of the relativistic Schrödinger equation. (Italian and Russian summaries) 85b:81058
- Irano, V. (with Lloa, J.; Marqués, F.; Molina, A.) An exactly solvable model in P.R.M.: quantization. II. (French summary) 85m:81070
- Kielanowski, P. See Aldinger, R. R.; et al., 85c:81051a
- Kim, Y. S. See Han, D.; et al., 85d:81071
- Komy, S. R. See Aldinger, R. R.; et al., 85c:81051a
- Lloa, J. See Irano, V.; et al., 85m:81070
- Loewe, M. See Aldinger, R. R.; et al., 85c:81051a and Böhm, A.; et al., 85c:81051b
- Magnollay, P. See Aldinger, R. R.; et al., 85c:81051a
- Marqués, F. See Irano, V.; et al., 85m:81070
- Molina, A. See Irano, V.; et al., 85m:81070
- Mukunda, N. See Aldinger, R. R.; et al., 85c:81051a and Biedenharn, L. C.; et al., 85j:81023
- von Rieth, J. The Hamilton-Jacobi theory of De Donder and Weyl applied to some relativistic field theories. 85d:81145
- Rohrlich, Fritz Constraint relativistic canonical particle dynamics. 85d:70013
- Son, D. See Han, D.; et al., 85d:81071
- Tarlini, M. See Biedenharn, L. C.; et al., 85j:81023
- Teitelboim, Claudio See Henneaux, M., 85h:81034
- Ternov, I. M. See Bordovitsyn, V. A., 85k:81061

# 81N05 Mathematically heuristic quantum mechanics (must also be assigned at least one other classification number in this section)

## secondary classifications (81N05)

- Cal, P. Y. (with Inomata, A.; Wilson, R.) Path-integral treatment of the Morse oscillator. 85g:81058
- Fortini, A. Determinantal solution of density matrix equations in time-dependent quantum mechanics. I. Constant perturbation. 85c:81007
- Grossmann, A. (with Wu, Tai Tsun) Fermi pseudopotential in higher dimensions. 85k:81042
- Inomata, A. See Cal, P. Y.; et al., 85g:81058
- Iwasaki, A. Microcanonical formulation of quantum field theories. 85i:81117
- McLean, R. G. D. See Wan, Kay Kong, 85b:81018
- Vreca, E. R. Perturbation theory in high order for generalized charmonium potentials. 85k:81048
- Wan, Kay Kong (with McLean, R. G. D.) Asymptotic localization and separation of states in quantum mechanics. 85b:81018
- Wilson, R. See Cal, P. Y.; et al., 85g:81058
- Wu, Tai Tsun See Grossmann, A., 85k:81042
- Zuchelli, A. Joseph Inadequacy of hydrodynamical theories of the Aharonov-Bohm effect. 85c:81012

## 82-XX STATISTICAL PHYSICS, STRUCTURE OF MATTER

## 82-01 Elementary exposition; textbooks

- Bogolyubov, N. N. Some problems connected with the justification of statistical mechanics. (Russian. English summary) 85m:82001
- Kubo, Ryogo See Toda, Morikazu; et al., 85d:82001
- Saitô, Nobuhiko See Toda, Morikazu; et al., 85d:82001
- Toda, Morikazu (with Kubo, Ryogo; Saitô, Nobuhiko) ★ Statistical physics. I. 85d:82001

## secondary classifications (82-01)

- Bogolyubov, N. N. (with Bogolyubov, N. N., Jr.) ★ Introduction to quantum statistical mechanics. 85d:82027
- Bogolyubov, N. N., Jr. See Bogolyubov, N. N., 85d:82027
- (Gupta, V. P.) See Bogolyubov, N. N., 85d:82027
- Hammersley, J. M. (with Maziarzo, G.) Markov fields, correlated percolation, and the Ising model. 85c:82044
- (Lee, C. J. H.) See Bogolyubov, N. N., 85d:82027
- Mazzarino, G. See Hammersley, J. M., 85c:82044
- Rajaraman, R. ★ Solitons and instantons. 85i:82002

## 82-02 Advanced exposition (research surveys, monographs, etc.)

- Carmeli, M. ★ Statistical theory and random matrices. 85c:82001
- Dobrushin, R. L. (with Sinai, Ya. G.) Mathematical problems in statistical mechanics. 85f:82001
- Economou, Eleftherios N. ★ Green's functions in quantum physics. 85b:82001
- (Evney, Arthur G.) See Fisher, Michael Ellis, 85b:82002
- Fedyanin, V. K. See Makhan'kov, V. G., 85b:82003
- Fetter, Alexander L. Lectures on correlation functions. 85m:82002
- Fisher, Michael Ellis Scaling, universality and renormalization group theory. 85b:82002
- Gallavotti, G. ★ Aspetti della teoria ergodica, qualitativa e statistica del moto. (Italian) [Aspects of the ergodic, qualitative and statistical theory of motion] 85j:82001
- Gaudin, Michel ★ La fonction d'onde de Bethe. (French) [The Bethe wave function] 85h:82001
- Makhan'kov, V. G. (with Fedyanin, V. K.) Nonlinear effects in quasi-one-dimensional models and condensed matter theory. 85b:82003
- Sinai, Ya. G. See Dobrushin, R. L., 85f:82001
- Stephen, Michael J. Lectures on disordered systems. 85m:82003

## secondary classifications (82-02)

- Aharony, Amnon Multicritical points. 85m:82038
- Aharonian, Michael Rigorous results on the critical behavior in statistical mechanics. (See 85d:82004)
- Armedo, A. (with Sornette, D.) Monte Carlo random-walk experiments as a test of chaotic orbits of maps of the interval. 85d:58053
- Axelrad, D. R. ★ Foundations of the probabilistic mechanics of discrete media. 85i:73003
- (Chernikov, N. A.) See de Groot, S.; et al., 85k:82057
- (Chulaevskii, V. A.) See Glimm, James, 85g:81001
- (Dobrosavljević, A. S.) See Klimontovich, Yu. L., 85i:82044
- (Dumbrău, T. Yu.) See de Groot, S.; et al., 85k:82057
- Ernst, M. H. Exact solutions of the nonlinear Boltzmann equation. 85g:82057
- Erzan, Ayşe Frustrated spin systems. 85i:82068
- (Eyre, David) See Thomas, Harry, 85m:82053
- (Falomkin, I. V.) See de Groot, S.; et al., 85k:82057
- Gerasimenko, V. I. See Petrina, D. Ya., 85i:82015
- Glimm, James (with Jaffe, Arthur) ★ Математические методы квантовой физики. (Russian) [Mathematical methods of quantum physics] 85g:81001
- de Groot, S. (with van Leeuwen, W. A.; van Weert, Ch. G.) ★ Релятивистская кинетическая теория. (Russian) [Relativistic kinetic theory] 85k:82057
- (Gusev, E. V.) See Glimm, James, 85g:81001
- Haken, Hermann ★ Synergetics: an introduction. 85e:00030
- Hejtmánek, J. See Kaper, H. G.; et al., 85i:82079
- Hughes, Barry D. (with Prager, Stephen) Random processes and random systems: an introduction. 85i:82039
- Jaffe, Arthur See Glimm, James, 85g:81001
- Kaper, H. G. (with Lekkerkerker, C. G.; Hejtmánek, J.) ★ Spectral methods in linear transport theory. 85i:82079
- (Khanin, K. M.) See Glimm, James, 85g:81001
- Kléman, M. ★ Points, lines and walls. In liquid crystals, magnetic systems and various ordered media. 85e:82058
- Klimontovich, Yu. L. ★ The kinetic theory of electromagnetic processes. 85i:82044
- van Leeuwen, W. A. See de Groot, S.; et al., 85k:82057
- Lekkerkerker, C. G. See Kaper, H. G.; et al., 85i:82079
- Lindblad, Göran ★ Nonequilibrium entropy and irreversibility. 85m:82066
- Malyahev, V. A. (with Minlos, R. A.; Petrova, E. N.; Terletskii, Yu. A.) Generalized contour models. (Russian) 85c:82008
- McCormick, N. J. Recent developments in inverse scattering transport methods. 85g:82135
- Messenger, A. (with Miracle-Sole, S.; Picco, P.; Ruiz, Jean Francois Alexandre) Long range rotators. (See 85d:00027)
- Minlos, R. A. See Malyahev, V. A.; et al., 85c:82008 and Glimm, James, 85g:81001
- Miracle-Sole, S. See Messenger, A.; et al., (85d:00027)
- Patashinskiĭ, A. Z. (with Pokrovskii, V. L.) ★ Флуктуационная теория фазовых переходов. (Russian) [Fluctuation theory of phase transitions] 85g:82036
- Petrina, D. Ya. (with Gerasimenko, V. I.) Mathematical description of the evolution of the state of infinite systems of classical statistical mechanics. (Russian) 85i:82015
- Petrova, E. N. See Malyahev, V. A.; et al., 85c:82008



- Flister, C. E. Interface and surface tension in Ising model. (See 85d:82004)  
 Picco, P. See Messenger, A.; et al., (85d:00027)  
 Pokrovskii, V. L. See Patazhinski, A. Z., 85g:82036  
 Prager, Stephen See Hughes, Barry D., 85i:82039  
 Ruis, Jean Francois Alexandre See Messenger, A.; et al., (85d:00027)  
 Sornette, D. See Arneodo, A., 85d:58053  
 Terletskii, Yu. A. See Malyzhev, V. A.; et al., 85e:82006  
 Thomas, Harry Phase transitions and instabilities. 85m:82053  
 Toulouse, Gérard Frustration and disorder, new problems in statistical mechanics: spin glasses in a historical perspective. (See 85a:82002)  
 van Weert, Ch. G. See de Groot, S.; et al., 85k:82057

## 82-03 Historical (must also be assigned at least one classification number from Section 01)

- Hammersley, J. M. Origins of percolation theory. 85d:82002  
 Siefert, J. Vergleich der Entropiekonzepte der statistischen Mechanik und von Carathéodory. [Comparison of the entropy concepts of statistical mechanics and of Carathéodory] 85k:82001

### secondary classifications (82-03)

- Bazarov, I. P. (with Nikolaev, P. N.) The birth of statistical physics. (Russian. English summary) 85m:01031  
 (Boltsmann, Ludwig) See Flamm, D., 85c:01046 and (Not in MR)  
 Flamm, D. Ludwig Boltzmann and his influence on science. 85c:01046  
 The life of Ludwig Boltzmann and his place in the history of kinetic theory. (Russian) (Not in MR)  
 Klein, Martin J. Fluctuations and statistical physics in Einstein's early work. (See 85g:01001)  
 Kubo, Ryogo Statistical mechanics: a survey of its one hundred years. 85c:01027  
 Lo Bello, Anthony On the origin and history of ergodic theory. 85e:01002  
 Marshall, Trevor W. Brownian motion, the second law and Boltzmann. (French summary) 85a:01048  
 Nikolaev, P. N. See Bazarov, I. P., 85m:01031  
 Schneer, Cecil J. The Renaissance background to crystallography. 85a:01025  
 (Starostin, B. A.) See Flamm, D., (Not in MR)  
 Toulouse, Gérard Frustration and disorder, new problems in statistical mechanics: spin glasses in a historical perspective. (See 85a:82002)  
 Biography:  
 Boltzmann, Ludwig See Flamm, D., 85c:01046

## 82-04 Explicit machine computation and programs (not the theory of computation or programming)

- Foerster, D. Hunting for  $d > 2$  quantum integrable systems on the computer. 85f:82002  
 Marinari, E. Complex zeroes of the  $d = 3$  Ising model: finite-size scaling and critical amplitudes. 85d:82003  
 Meirovitch, Hagai Methods for estimating entropy with computer simulation: the simple cubic Ising lattice. 85a:82001

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- Alexandrowicz, Z. Self-avoiding walks of continuous spatial dimensionality. 85a:82077  
 d'Arcangelo, L. See Redner, S., 85g:82108  
 Arede, T. (with Johannesen, S.; Merlini, D.) On the thermodynamic limit of the Mehta-Dyson one-dimensional plasma with long range interaction. 85i:82047  
 Bachas, Constantin P. Computer-intractability of the frustration model of a spin glass. 85j:82043  
 Bakker, A. F. See Hilhorst, H. J.; et al., 85f:81001  
 Barrie, R. See Palffy-Muhoray, P.; et al., 85g:82106  
 Bergersen, B. See Palffy-Muhoray, P.; et al., 85g:82106  
 Bhanot, Gyan Lattices, demons and the microcanonical ensemble. (See 85m:81003)  
 Bruin, C. See Hilhorst, H. J.; et al., 85f:81001  
 Carvalho, I. See Palffy-Muhoray, P.; et al., 85g:82106  
 Chang, Kai Cheh (with Odagaki, T.) Site-bond percolation problems. 85g:82066  
 Compagner, A. See Hilhorst, H. J.; et al., 85f:81001  
 Freeman, M. See Palffy-Muhoray, P.; et al., 85g:82106  
 Gunton, J. D. The dynamics of random interfaces in phase transitions. 85g:82034  
 Guttman, A. J. Bounds on connective constants for self-avoiding walks. 85a:82079  
 On two-dimensional self-avoiding random walks. 85g:82096  
 Hall, S. R. A procedure for identifying enantiomorph-defining phases. 85a:82074  
 Hammersley, J. M. (with Mazarino, G.) Markov fields, correlated percolation, and the Ising model. 85c:82044  
 Hatch, Dorian M. (with Stokes, Harold T.) Symmetry-restricted phase transitions in two-dimensional solids. 85m:82043  
 Hilhorst, H. J. (with Bakker, A. F.; Bruin, C.; Compagner, A.; Hoogland, A.) Special purpose computers in physics. 85f:81001  
 Hoogland, A. See Hilhorst, H. J.; et al., 85f:81001  
 Ichimura, Atsushi See Tsuchiya, Takashi, 85b:58003  
 Johannesen, S. See Arede, T.; et al., 85i:82047  
 Kalos, M. See Penrose, O.; et al., 85e:82035  
 Katz, Sheldon (with Lebowitz, Joel L.; Spohn, Herbert) Nonequilibrium steady states of stochastic lattice gas models of fast ionic conductors. 85e:82069  
 Lebowitz, Joel L. See Penrose, O.; et al., 85e:82035 and Katz, Sheldon; et al., 85e:82069  
 Li, Tie Cheng See Zhou, Z. C., 85g:82112  
 Machta, Jonathan Power law decay of correlations in a billiard problem. 85e:70010  
 (with Zwanig, Robert) Diffusion in a periodic Lorentz gas. 85b:82074  
 Marinari, E. (with Parisi, G.; Ruelle, David; Windey, P.) Random walk in a random environment and  $1/f$  noise. 85b:82035  
 Marro Borau, Joaquin See Penrose, O.; et al., 85e:82035

- Martin, H. See Vannimenus, J.; et al., 85g:82070  
 Mazarino, G. See Hammersley, J. M., 85c:82044  
 McCoy, Barry M. (with Perk, J. H. H.; Shrock, Robert E.) Time-dependent correlation functions of the transverse Ising chain at the critical magnetic field. 85f:82054  
 Merlini, D. See Arede, T.; et al., 85i:82047  
 Nadal, J. P. See Vannimenus, J.; et al., 85g:82070  
 Odagaki, T. See Chang, Kai Cheh, 85g:82066  
 Palffy-Muhoray, P. (with Barrie, R.; Bergersen, B.; Carvalho, I.; Freeman, M.) Tunneling resistivity of a one-dimensional random lattice and the Petersburg problem. 85g:82106  
 Parisi, G. See Marinari, E.; et al., 85b:82035  
 Penrose, O. (with Lebowitz, Joel L.; Marro Borau, Joaquin; Kalos, M.; Tobochnik, J.) Kinetics of a first-order phase transition: computer simulations and theory. 85e:82035  
 Perk, J. H. H. See McCoy, Barry M.; et al., 85f:82054  
 Redner, S. (with de Arcangelis, L.) Asymptotic properties of spiral self-avoiding walks. 85g:82108  
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 Sawada, Y. A thermodynamic variational principle in nonlinear systems far from equilibrium. 85h:82023  
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 Spohn, Herbert See Katz, Sheldon; et al., 85e:82069  
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 Tobochnik, J. See Penrose, O.; et al., 85e:82035  
 Tsuchiya, Takashi (with Ichimura, Atsushi) "Pure chaotic" orbits of one-dimensional maps have third-order correlation. 85b:58003  
 Vannimenus, J. (with Nadal, J. P.; Martin, H.) On the spreading dimension of percolation and directed percolation clusters. 85g:82070  
 Visek, T. On random walks in percolation models. 85a:82056  
 Voss, Richard F. The fractal dimension of percolation cluster hulls. 85e:82052  
 Windey, P. See Marinari, E.; et al., 85b:82035  
 Zhou, Z. C. (with Li, Tie Cheng) Self-avoiding path walks on lattices—a new universality class? 85g:82112  
 Zwanig, Robert See Machta, Jonathan, 85b:82074

## 82-05 Experimental papers

### secondary classifications (82-05)

- Jansen, A. R. (with Leech, J. W.) Periodic multistep methods in molecular dynamics. 85m:82005  
 Leech, J. W. See Jansen, A. R., 85m:82005

## 82-06 Proceedings, conferences, etc.

- (Erickson, J. L.) See Orienting polymers. 85i:82001  
 (Fröhlich, J.) See Scaling and self-similarity in physics. 85d:82004  
 (van Hemmen, J. L.) See Colloquium: Heidelberg, spin glasses. 85a:82002  
 (Horsthemke, W.) See Fluctuations and sensitivity in nonequilibrium systems. 85h:82002  
 (Kondepudi, D. K.) See Fluctuations and sensitivity in nonequilibrium systems. 85h:82002  
 (Morgenstern, I.) See Colloquium: Heidelberg, spin glasses. 85a:82002  
 (Shlesinger, Michael F.) See Random walks and their applications in the physical and biological sciences. 85k:82002  
 (West, Bruce J.) See Random walks and their applications in the physical and biological sciences. 85k:82002  
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- Guetti, Joan Farmer (with Goldstein, Sheldon; Speer, E. R.) Invariant states of a thermally conducting barrier. **85g:82006**
- Hejtmánek, J. The problem of reconstructing objects from projections as an inverse problem in scattering theory of the linear transport operator. **85c:92009**
- Hennart, J. P. Piecewise continuous discretization techniques for initial value problems with applications to kinetics and transport. **85m:85065**
- Hernández-Machado, A. (with Sagués, F.) Joint probability distribution beyond the Smoluchowski limit for Brownian motion in position space. **85m:82060**
- Hong, K. M. (with Noolandi, J.) Comment on: "An unexpected symmetry of the Coulomb potential in the Debye-Smoluchowski equation" [Chem. Phys. Lett. **91** (1982), no. 2, 101-108; MR **83j:82016**] by P. Clifford, N. J. B. Green and M. J. Pilling. **85a:82042**
- Hubbard, J. B. See Kayser, R. F., **85f:82029a** and Delyon, François, **85f:82029b**
- Hughes, Barry D. (with Prager, Stephen) Random processes and random systems: an introduction. **85i:82039**
- (with Montroll, Elliott W.; Shlesinger, Michael F.) Fractal and lacunary stochastic processes. **85c:82029**
- Kang, Kiho See Redner, S., **85d:82103a** and **85d:82103b**
- Kayser, R. F. (with Hubbard, J. B.) Diffusion in a medium with a random distribution of static traps. **85f:82029a**
- See also Delyon, François, **85f:82029b**
- Kazakov, A. Ya. Inverse problems for linear radiative transfer in a plane medium. (Russian) **85c:85003**
- An inverse problem of the linear theory of radiation transport. (Russian) **85f:85008**
- Khamidov, A. G. See Sultangazin, U. M., **85d:34009**
- Kirkpatrick, T. R. (with Dorfman, J. R.) Transport theory for a weakly interacting condensed Bose gas. **85a:82046**
- Kueller, Gerald R. (with Titulaer, U. M.) The covariant form of the Klein-Kramers equation and the associated moment equations. **85m:82070**
- Lackner, Thomas See Eder, Otto J.; et al., **85m:82058**
- Lakatos-Lindenberg, Katja See Weiss, George H.; et al., **85g:82060**
- Leggett, A. J. See Caldeira, A. O., **85i:82037**
- Machta, Jonathan (with Zwanzig, Robert) Diffusion in a periodic Lorentz gas. **85b:82074**
- Mandelbrot, Benoit B. See Given, James A., **85m:82112**
- Marchetti, M. Cristina (with Duffy, James W.) Tagged particle fluctuations in uniform shear flow. **85f:82025**
- Mareschal, M. Local entropy production and Gibbs relation from the nonlinear revised Enskog equation. **85b:82032**
- Marshak, A. Correction: "On the solution of the transport equation in a nonhomogeneous medium by the method of discrete ordinates" [Eesti NSV Tead. Akad. Toimetised Füüs.-Mat. **30** (1981), no. 3, 191-201; MR **83c:65267**] (Russian). **85g:85126**
- van der Mee, C. V. M. See Greenberg, William, **85j:47007**
- Meritet, Alain See Gaveau, Bernard, **85f:82028**
- Mokhtar-Kharroubi, Mustapha Existence, inexistence, majoration, stabilité et invariance du spectre de l'opérateur de transport. (English summary) [Existence, nonexistence, bounds, stability and invariance of the spectrum of the transport operator] **85c:45018a**
- Théorie spectrale de l'opérateur de transport dans le cas anisotrope dégénéré. (English summary) [Spectral theory for the transport operator: the degenerate anisotropic case] **85c:45018b**
- Montroll, Elliott W. See Hughes, Barry D.; et al., **85c:82029**
- Moss, William F. Numerical solution of integral equations with convolution kernels. II. **85m:65137**
- Mukamel, Shaul See Nieuwoudt, Johan, **85m:82104**
- Nieuwoudt, Johan (with Mukamel, Shaul) Transport and percolation in disordered systems—a self-consistent time-local approach. **85m:82104**
- Noolandi, J. See Hong, K. M., **85a:82042**
- Obukhov, S. P. See Bulgadaev, S. A., **85a:82064**
- Papanicolaou, George C. Diffusions and random walks in random media. **85c:60124**
- Pittkranta, J. (with Ridgway, Scott L.) Error estimates for the combined spatial and angular approximations of the transport equation for slab geometry. **85g:65137**
- Posch, Maximilian See Eder, Otto J.; et al., **85m:82058**
- Prager, Stephen See Hughes, Barry D., **85i:82039**
- Privman, Vladimir See Fisher, Michael Ellis; et al., **85f:82060**
- Protopopescu, V. Dilation theory applied to linear transport. **85c:45019**
- Rackovsky, S. See Scher, H., **85k:82002**
- Redner, S. (with Kang, Kiho) Asymptotic solution of interacting walks in one dimension. **85d:82103a**
- (with Kang, Kiho) Errata: "Asymptotic solution of interacting walks in one dimension". **85d:82103b**
- See also Fisher, Michael Ellis; et al., **85c:82050**
- Ridgway, Scott L. See Pittkranta, J., **85g:65127**
- Rodríguez, Rosalío F. (with Salinas-Rodríguez, E.; Duffy, James W.) Fokker-Planck and Langevin descriptions of fluctuations in uniform shear flow. **85f:82028**
- Rosen, G. Navier-Stokes symmetry in the phenomenological transport theory for bacterial chemotaxis. **85c:92063**
- Brownian-motion correspondence method for obtaining approximate solutions to nonlinear reaction-diffusion equations. **85k:82020**
- Sagués, F. See Hernández-Machado, A., **85m:82060**
- Salinas-Rodríguez, E. See Rodríguez, Rosalío F.; et al., **85f:82028**
- Scher, H. (with Rackovsky, S.) Random walk theory of geminate recombination. (See **85k:82002**)
- Shlesinger, Michael F. See Hughes, Barry D.; et al., **85c:82029**
- Shuler, Kurt E. See Weiss, George H.; et al., **85g:82060**
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- Speer, E. R. See Guetti, Joan Farmer; et al., **85g:82006**
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- Steyn-Ross, M. L. See Gardiner, C. W., **85c:82038b**
- Sultangazin, U. M. (with Khamidov, A. G.) Investigation of roots of the characteristic equation of a system of equations of the method of spherical harmonics. (Russian. Kazakh summary) **85d:34009**
- Sung, Wok Yung (with Friedman, Harold L.) Time correlation functions of the Smoluchowski level of description of solutions and suspensions. **85b:82034**
- Thouless, D. J. Quantization of particle transport. **85a:81141**
- Titulaer, U. M. See Kueller, Gerald R., **85m:82070**
- Vigfusson, J. O. Diffusion constant for a random chain with correlated hopping rates. **85g:82090**
- Vlascher, P. B. Analytic field points of discrete equations of motion: universality in homogeneous diffusive systems. **85i:82059a**
- Universality in disordered diffusive systems: exact fixed points in one, two, and three dimensions. **85i:82059b**
- Wagner, Max Generalised Fulton-Gouterman transformation for systems of abelian symmetry. **85h:81086**
- Wang, Alan P. See Dudley, David, **85h:81020**
- Watkins, Joseph C. A central limit problem in random evolutions. **85g:60044**
- Weiss, Lutz W. Decompositions of positive operators and some of their applications. **85m:47038**
- Weiss, George H. (with Shuler, Kurt E.; Lakatos-Lindenberg, Katja) Order statistics for first passage times in diffusion processes. **85g:82060**
- Wiegell, F. W. Distribution of the angle of rotation for plane random walks. (Not in MR)
- See also Boersma, Johannes, **85c:8204b**
- Yang, Ming Zhu (with Zhu, Guang Tian) The convergence theory for discrete-ordinate approximations in higher spatial dimensions. **85c:65130**
- Zastavenko, L. G. See Chernenko, L. P., **85m:45010**
- Zhu, Guang Tian See Yang, Ming Zhu, **85c:65130**
- Zwanzig, Robert See Machta, Jonathan, **85b:82074**

## 82A75 Nuclear reactor theory

- Busoni, G. A nonlinear model of nuclear reactor evolution with poisoning effects. (Italian summary) **85d:82122**
- Daniel, Ramsi (with Pomraning, G. C.; Larsen, E. W.) On the completeness of elementary solutions of the transport equation for an exponential atmosphere. **85b:82044**
- Frosali, G. Strict global solution of a nonlinear evolution problem for neutrons and poison nuclei densities. (Italian summary) **85i:82081**

- Gryn', V. I. Generalization of Pomraning boundary conditions to  $P_N$ -approximation of the method of spherical harmonics for the transport equation. (Russian) 85m:82144
- Johnson, Clem (with Pitkäranta, J.) Convergence of a fully discrete scheme for two-dimensional neutron transport. 85c:83063
- Laurem, E. W. See Daniel, Ramzi; et al., 85h:82044
- Nell, Charles H. Existence, uniqueness and behavior of solutions of a singular nonlinear system from fluid dynamics. 85d:82123
- Pitkäranta, J. See Johnson, Clem, 85c:83063
- Pomraning, G. C. See Daniel, Ramzi; et al., 85h:82044
- Sentis, Rémi Asymptotic analysis of a transport equation in a domain with an interface. 85c:83080
- Trombetti, T. A nodal approach to nonlinear stability in nuclear reactor space dynamics. 85c:82063
- Williams, M. M. R. The influence of random fluctuations on the behaviour of an aerosol. 85c:82061

## secondary classifications (82A75)

- Hennart, J. P. Piecewise continuous discretization techniques for initial value problems with applications to kinetics and transport. 85m:85065
- Kallin, A. V. (with Morozov, S. F.) The method of linearization for a nonlinear integro-differential system of transport equations. (Russian) 85k:45015
- Lin, Qun See Zhu, Guang Tian, 85h:82043
- Melchanev, S. A. (with Tutubalin, V. N.) A linear model of a hydromagnetic dynamo, and products of random matrices. (Russian) 85m:85005
- Morozov, S. F. See Kallin, A. V., 85k:45015
- Tutubalin, V. N. See Melchanev, S. A., 85m:85005
- Wilson, D. G. Time dependent linear transport. III. Convergence of the discrete ordinate method. 85m:82143
- Zhu, Guang Tian (with Lin, Qun) The multigroup transport theory and the critical problem. (Chinese. English summary) 85h:82043
- Nelkin, Mark 1/f resistance fluctuations. (See 85h:58121)

## secondary classifications (82A75)

- Bruce, A. D. (with Wallace, D. J.) Droplet theory in low dimensions: Ising systems in zero field. 85j:82021
- Devi, K. R. S. (with Patrascioiu, A.) A system of strings and springs in three dimensions. 85k:70019
- Fedyanin, V. K. See Makhan'kov, V. G., 85b:83003
- Fetier, Alexander L. Lectures on correlation functions. 85m:82002
- Makhan'kov, V. G. (with Fedyanin, V. K.) Nonlinear effects in quasi-one-dimensional models and condensed matter theory. 85b:82003
- Patrascioiu, A. See Devi, K. R. S., 85k:70019
- Petrovsky, T. Y. Chaos and irreversibility in a conservative nonlinear dynamical system with a few degrees of freedom. 85i:58057
- Stell, George Exact equation for the pair-connectedness function. 85m:82078
- Tomita, Kazuhisa Coarse graining revisited—the case of macroscopic chaos. (See 85h:58121)
- Wallace, D. J. See Bruce, A. D., 85j:82021

82A97 Mathematically heuristic statistical physics (must also be assigned at least one other classification number in this section)

## secondary classifications (82A97)

- Badrale, E. (with Gupta, Raj K.; Scheid, Werner) Nonperturbative solution of a quantum mechanical oscillator interacting with a specific environment. 85i:82021
- Derrida, B. See Gardner, E.; et al., 85f:82051
- (Every, Arthur G.) See Fisher, Michael Ellis, 85b:82002
- Fisher, Michael Ellis Scaling, universality and renormalization group theory. 85b:82002
- Gardner, E. (with Itzykson, Claude; Derrida, B.) The Laplacian on a random one-dimensional lattice. 35f:82051
- Itzykson, Claude (with Pearson, R. B.; Zuber, Jean-Bernard) Distribution of zeros in Ising and gauge models. 85d:82109
- See also Gardner, E.; et al., 85f:82051
- Knobloch, Edgar (with Wiesenfeld, Kurt) Bifurcations in fluctuating systems: the center-manifold approach. 85i:58091
- Kupta, Raj K. See Badrale, E.; et al., 85i:82021
- Pearson, R. B. See Itzykson, Claude; et al., 85d:82109
- Scheid, Werner See Badrale, E.; et al., 85i:82021
- Wiesenfeld, Kurt See Knobloch, Edgar, 85i:58091
- Zuber, Jean-Bernard See Itzykson, Claude; et al., 85d:82109

## 82A99 Miscellaneous topics

- Simons, Stuart On the conservation of volume during particle coagulation. 85a:82094

## secondary classifications (82A99)

- Avnir, David (with Farin, Dina; Pfeifer, Peter) Chemistry in noninteger dimensions between two and three. II. Fractal surfaces of adsorbents. 85d:80010b
- See also Pfeifer, Peter, 85d:80010a
- Bonomi, Ernesto See Lutton, Jean-Luc; et al., (Not in MR)
- Farin, Dina See Avnir, David; et al., 85d:80010b
- Feix, Marc Roy See Lutton, Jean-Luc; et al., (Not in MR)
- Kapur, J. N. Twenty-five years of maximum-entropy principle. 85a:94016
- Lutton, Jean-Luc (with Bonomi, Ernesto; Feix, Marc Roy) Blocking probability for a multistage Clos connecting network. (Not in MR)
- Luwel, M. See Severne, G., 85f:85004
- Pfeifer, Peter (with Avnir, David) Chemistry in noninteger dimensions between two and three. I. Fractal theory of heterogeneous surfaces. 85d:80010a

See also Avnir, David; et al., 85d:80010b

- Severne, G. (with Luwel, M.) A new approach to the relaxation process in gravitational systems. 85f:85004
- Wolfram, Stephen Statistical mechanics of cellular automata. 85d:68057
- Yamaguti, Masaya On one-dimensional and two-dimensional chaos. (Japanese) (Not in MR)

## 83-XX RELATIVITY

## 83-01 Elementary exposition; textbooks

- Arifov, L. Ya. ★ Общая теория относительности и тяготение. (Russian) [General relativity theory and gravitation] 85b:83001
- von Borzeszkowski, Horst-Heino See Treder, H.-J.; et al., 85g:83001
- Hughston, L. P. (with Tod, K. P.) ★ Lectures on general relativity. 85f:83001
- van der Merwe, Alwyn See Treder, H.-J.; et al., 85g:83001
- (Mitakevich, N. V.) See Arifov, L. Ya., 85b:83001
- Sedov, L. I. Global time in general relativity. (Russian) 85c:83001
- Tod, K. P. See Hughston, L. P., 85f:83001
- Treder, H.-J. (with von Borzeszkowski, Horst-Heino; van der Merwe, Alwyn; Yourgrau, Wolfgang) ★ Fundamental principles of general relativity theories. 85g:83001
- Wheeler, J. A. Einstein's second century. (See 85i:83001)
- Yourgrau, Wolfgang See Treder, H.-J.; et al., 85g:83001

## secondary classifications (83-01)

- Beju, I. (with Soós, E.; Teodorescu, P. P.) ★ Euclidean tensor calculus with applications. 85f:53001a
- Bowden, Leon See Schiffer, M. M., 85h:00002
- Canoni, Vittorio The pursuit of light. (Italian) 85k:83003
- Goldberg, Stanley ★ Understanding relativity. 85h:01023
- (Samuel, Joseph) See Beju, I.; et al., 85f:53001a
- Schiffer, M. M. (with Bowden, Leon) ★ The role of mathematics in science. 85h:00002
- Soós, E. See Beju, I.; et al., 85f:53001a
- Teodorescu, P. P. See Beju, I.; et al., 85f:53001a

## 83-02 Advanced exposition (research surveys, monographs, etc.)

- Chandrasekhar, Subrahmanyan ★ The mathematical theory of black holes. 85c:83002
- Goldberg, Joshua N. Developments and predictions. (See 85k:83002)
- Schmutser, Ernst Prospects for relativistic physics. (See 85i:83001)
- Stephani, H. Are there limits to Einstein's theory of gravitation? (See 85m:83002)
- Wilczek, Frank Conference summary and concluding remarks. (See 85k:83043)

## secondary classifications (83-02)

- Birrell, N. (with Davies, P. C. W.) ★ Квантованные поля в искривленном пространстве-времени. (Russian) [Quantum fields in curved space-time] 85e:81096
- (Chernikov, N. A.) See de Groot, S.; et al., 85k:82057
- Davies, P. C. W. See Birrell, N., 85e:81096
- (Dumbrău, T. Yu.) See de Groot, S.; et al., 85k:82057
- (Falomkin, I. V.) See de Groot, S.; et al., 85k:82057
- (Gal'tsov, D. V.) See Birrell, N., 85e:81096
- de Groot, S. (with van Leeuwen, W. A.; van Weert, Ch. G.) ★ Релятивистская кинетическая теория. (Russian) [Relativistic kinetic theory] 85k:82057
- van Leeuwen, W. A. See de Groot, S.; et al., 85k:82057
- Lichnerowicz, André Géométrie et physique. [Geometry and physics] (See 85k:83002)
- Matoles, T. ★ A concept of mathematical physics: models for space-time. 85m:53086
- O'Neill, Barrett ★ Semi-Riemannian geometry. 85f:53002
- (Smorodinskii, Ya. A.) See Birrell, N., 85e:81096
- Ward, R. S. The present state of the twistor programme. (See 85i:83001)
- van Weert, Ch. G. See de Groot, S.; et al., 85k:82057

## 83-03 Historical (must also be assigned at least one classification number from Section 01)

- Debever, Robert Relativité ou recherche d'absolu. [Relativity or search for the absolute] (Not in MR)
- (Ehrenfest, Paul) See Gorelik, G. E., 85m:83001
- (Einstein, Albert) See Liu, Shu Lin, (Not in MR)
- Eisenstaedt, J. La relativité générale: une théorie sans problème(s)? [General relativity: a theory with no problem(s)?] (See 85k:83002)
- Gorelik, G. E. ★ Размерность пространства. (Russian) [The dimension of space] 85m:83001
- Liu, Shu Lin An note on Appendix II of *The meaning of relativity* by A. Einstein. (Chinese) (Not in MR)
- Mitakevich, N. V. Gravitation and geometry: dialectical synthesis. (Russian) (See 85d:00030)
- Walter, Johann Das Gesetz von Maxwell-Clausius in der phänomenologischen Thermodynamik. [The Maxwell-Clausius law in phenomenological thermodynamics] (See 85e:34002)

## secondary classifications (83-03)

- (Aegerter, Simon) See Gerteis, Martel, 85j:01022
- Akhieser, A. I. Einstein and modern physics. (Russian) (See 85d:00030)
- Bergmann, Peter G. The quest for unity: general relativity and unitary field theories. (See 85g:01001)
- (Bošković, R.) See Stipančić, Ernest, 85e:01069
- Delokarov, K. Kh. On the sources of the materialistic interpretation of the theory of relativity (S. Yu. Semkovskii's elaboration of the philosophical problems of Einstein's theory). (Russian) 85e:00024

- Dirac, Paul Adrien Maurice The early years of relativity. (See 85g:01001)  
 (Einstein, Albert) See Stipančič, Ernest, 85e:01009 and Gertels, Martel, 85j:01022  
 Gertels, Martel ★ Einstein's Zeitdehnung. (German) [Einstein's time dilation] 85j:01022  
 Goldberg, Stanley ★ Understanding relativity. 85h:01023  
 Goodstein, Judith R. The Italian mathematicians of relativity. 85c:01033  
 Gorelik, G. E. ★ Почему пространство трехмерно? (Russian) [Why is space three-dimensional?] 85i:00023  
 Hawking, S. W. ★ Is the end in sight for theoretical physics? 85e:01035  
 Hill, Robert Nyden The origins of predictive relativistic mechanics. 85f:01021  
 Kinoshita, V. A. ★ Философские проблемы физики гравитации. (Russian) [Philosophical problems of the physics of gravitation] 85b:00008  
 Konopleva, N. P. Inertial motion and axiomatics of physical theories. (Russian) 85h:01034  
 Lausberg, A. De l'espace absolu de Newton à l'espace-temps d'Einstein. I. L'espace absolu remis en question. (English summary) [From Newton's absolute space to Einstein's space-time. I. Absolute space questioned] 85e:01007  
 (Lorentz, Hendrik Antoon) See Schröder, Wilfried, 85k:01037  
 Medicus, Heinrich A. A comment on the relations between Einstein and Hilbert. 85b:01034  
 Melcher, H. Some supplements to Einstein-documents. (See 85i:83001)  
 Miller, Arthur I. The special relativity theory: Einstein's response to the physics of 1905. (See 85g:01001)  
 Prokhorov, S. J. The status of Einstein's stationary system. (Not in MR)  
 Schröder, Wilfried Hendrik Antoon Lorents and Emil Wiechert (Briefwechsel und Verhältnis der beiden Physiker). [Hendrik Antoon Lorents and Emil Wiechert (correspondence and relationship of the two physicists)] 85k:01037  
 Stipančič, Ernest Bošković and Einstein. (Russian) 85e:01009  
 Tatarinov, Yu. B. Sixtieth anniversary of Fridman's theory of the expanding universe. (Russian. English summary) 85b:01038  
 (Wiechert, Emil) See Schröder, Wilfried, 85k:01037  
 Correspondence:  
 Lorents, Hendrik Antoon-Wiechert, Emil See Schröder, Wilfried, 85k:01037

### 83-04 Explicit machine computation and programs (not the theory of computation or programming)

- d'Inverno, R. A. Computer methods in general relativity. (See 85i:83001)  
 Aman, Jan E. Computer-aided classification of geometries in general relativity; example: the Petrov type D vacuum metrics. (See 85k:83001)  
 MacCallum, M. A. H. Classifying metrics in theory and practice. (See 85m:83002)

#### secondary classifications (83-04)

- Chen, Y. (with Guo, Dong Sheng; Ernst, F. J.) Charged spinning mass field involving rational functions. 85a:83014  
 Corkill, R. W. (with Stewart, J. M.) Numerical relativity. II. Numerical methods for the characteristic initial value problem and the evolution of the vacuum field equations for space-times with two Killing vectors. 85b:83006b  
 Dautcourt, G. The cosmological problem as initial value problem on the observer's past light cone: geometry. 85c:83105  
 Ernst, F. J. See Chen, Y.; et al., 85a:83014  
 Friedrich, Helmut See Stewart, J. M., 85b:83006a  
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 See also Corkill, R. W., 85b:83006b  
 Yamashita, Yoshiyuki Computer calculation of tensors in Riemann normal coordinates. 85d:83028

### 83-05 Experimental papers

- Braginskii, V. B. (with Thorne, K. S.) Present status of gravitational-wave experiments. (See 85i:83001)  
 Drever, R. W. P. (with Ford, G. M.; Hough, J.; Kerr, I. M.; Munley, A. J.; Pugh, J. R.; Robertson, N. A.; Ward, H.) A gravity-wave detector using optical cavity sensing. (See 85i:83001)  
 Ford, G. M. See Drever, R. W. P.; et al., (85i:83001)  
 Grishchuk, L. P. Experiments on gravitational waves with electromagnetic detectors. (See 85i:83001)  
 Hough, J. See Drever, R. W. P.; et al., (85i:83001)  
 Kerr, I. M. See Drever, R. W. P.; et al., (85i:83001)  
 Munley, A. J. See Drever, R. W. P.; et al., (85i:83001)  
 Pugh, J. R. See Drever, R. W. P.; et al., (85i:83001)  
 Robertson, N. A. See Drever, R. W. P.; et al., (85i:83001)  
 Thorne, K. S. See Braginskii, V. B., (85i:83001)  
 Ward, H. See Drever, R. W. P.; et al., (85i:83001)

#### secondary classifications (83-05)

- Schrader, Robert On the electromagnetic response to gravitational waves. 85f:83002

### 83-06 Proceedings, conferences, etc.

- (Aragone, C.) See Relativity, cosmology, topological mass and supergravity, 85h:83001  
 (Bonnor, W. B.) See Classical general relativity, 85k:83001  
 (Braginskii, V. B.) See General relativity, 85d:83001  
 (De Sabbata, V.) See Unified field theories of more than 4 dimensions, 85m:83002  
 (Duff, M. J.) See Quantum structure of space and time, 85g:83004  
 (Flaherty, Francis J.) See Asymptotic behavior of mass and spacetime geometry, 85g:83002  
 (Hawking, S. W.) See General relativity, 85d:83001  
 (Islam, Christopher J.) See Quantum structure of space and time, 85g:83004

- (Islam, J. N.) See Classical general relativity, 85k:83001  
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 (Manin, Yu. I.) See Geometric ideas in physics, 85g:83003  
 (Schmutzer, Ernst) See Proceedings: International conference on general relativity and gravitation, 85i:83001 and Unified field theories of more than 4 dimensions, 85m:83002  
 (Smorodinskii, Ya. A.) See General relativity, 85d:83001  
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 Caracas ★ Relativity, cosmology, topological mass and supergravity. 85h:83001  
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 Conference:

- Asymptotic behavior of mass and spacetime geometry ★ Asymptotic behavior of mass and spacetime geometry. 85g:83002  
 Classical general relativity ★ Classical general relativity. 85k:83001  
 General relativity and gravitation ★ Proceedings of the ninth international conference on general relativity and gravitation. 85i:83001  
 Gravitation, geometry and relativistic physics ★ Gravitation, geometry and relativistic physics. 85k:83002  
 Relativity ★ Gravitation, geometry and relativistic physics. 85k:83002  
 Corvallis, Ore. ★ Asymptotic behavior of mass and spacetime geometry. 85g:83002  
 Erice ★ Unified field theories of more than 4 dimensions. 85m:83002  
 General relativity ★ Общая теория относительности. (Russian) [General relativity] 85d:83001  
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- Arms, Judith M. (with Marsden, Jerrold E.; Moncrief, Vincent) The structure of the space of solutions of Einstein's equations. II. Several Killing fields and the Einstein-Yang-Mills equations. 85b:83033
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- de Groot, S. (with van Leeuwen, W. A.; van Weert, Ch. G.) ★ Релятивистская кинетическая теория. (Russian) [Relativistic kinetic theory] 85k:82057
- van Leeuwen, W. A. See de Groot, S.; et al., 85k:82057
- van Weert, Ch. G. See de Groot, S.; et al., 85k:82057

### 85-03 Historical (must also be assigned at least one classification number from Section 01)

secondary classifications (85-03)

- Demin, V. G. See Grebenikov, E. A., (85g:01004)
- Grebenikov, E. A. (with Demin, V. G.) Astronomy. (Russian) (See 85g:01004)
- Hooykaas, R. Rhetoric's lost treatise on holy scripture and the motion of the Earth. 85k:01012
- Lausberg, A. De l'espace absolu de Newton à l'espace-temps d'Einstein. I. L'espace absolu remis en question. (English summary) [From Newton's absolute space to Einstein's space-time. I. Absolute space questioned] 85e:01067
- Nevakaya, N. I. ★ Петербургская астрономическая школа XVIII в. (Russian) [The St. Petersburg astronomical school in the 18th century] 85k:01018
- (Ogorodnikov, K. F.) See Nevakaya, N. I., 85k:01018
- (Rhetoric, Georg Joachim) See Hooykaas, R., 85k:01012
- Shel'min, O. B. On the history of the statistical method in astronomy. 85d:01006

### 85-04 Explicit machine computation and programs (not the theory of computation or programming)

- Appel, Andrew W. An efficient program for many-body simulation. 85m:85001

secondary classifications (85-04)

- Kozlov, N. N. The method of virtual contacts. (Russian) 85b:85001

### 85-08 Computational methods

- Eriguchi, Yoshiharu (with Hachisu, Izumi) Gravitational equilibrium of a multibody fluid system. 85c:85001
- Hachisu, Izumi See Eriguchi, Yoshiharu, 85c:85001
- Kozlov, N. N. The method of virtual contacts. (Russian) 85b:85001

secondary classifications (85-08)

- Chang, Kar Man See Ratcliff, Stephen J.; et al., 85h:85003
- Ferrini, Federico (with Marchesoni, Fabio) Stochastic models for the evolution of open stellar systems. 85m:85003
- Marchesoni, Fabio See Ferrini, Federico, 85m:85003
- Ratcliff, Stephen J. (with Chang, Kar Man; Schwarzschild, M.) Stellar orbits in angle variables. 85h:85003
- Schwarzschild, M. See Ratcliff, Stephen J.; et al., 85h:85003

### 85A04 General

- Chikanov, Yu. A. See Dubrovskii, A. S., 85i:85001
- Dubrovskii, A. S. (with Chikanov, Yu. A.) Steady oscillations of a viscous moon. (Russian) 85i:85001

secondary classifications (85A04)

- Hadjidemetriou, J. D. (with Ichtarioglou, S.) A qualitative study of the Kirkwood gaps in the asteroids. 85a:70024
- Ichtarioglou, S. See Hadjidemetriou, J. D., 85a:70024

## 85A05 Galactic and stellar dynamics

- Abramowicz, Marek A. (with Livio, Mario; Piran, Tsvi; Wiita, Paul J.) Local stability of thick accretion disks. I. Basic equations and parallel perturbations in the negligible viscosity case. **85c:85002**
- Antonov, V. A. Modeling of processes of cyclic evolution type. Synchronization by a random signal. (Russian. English summary) **85f:85001**
- Bogoyavlenskii, O. I. Periodic solutions in the model of pulsar rotation. (Russian) **85m:85002**
- Buchler, J. R. (with Regev, O.) The effects of nonlinearities on radial and nonradial oscillations. **85c:85003**
- (with Pesnell, W. Dean) Critique of the iterative theory of stellar pulsations. **85f:85002**
- Chang, Kar Man See Ratcliff, Stephen J.; et al., **85h:85003**
- Chen, Zhen Cheng (with Weng, Shi Da; Xu, Mei) A boundary value problem of barred spiral galaxies. (Chinese) (Not in MR)
- Contopoulos, G. Bifurcations, gaps, and stochasticity in barred galaxies. **85a:85001**
- Docobo Durantes, José Angel (with Pétiz Calvo, Felipe) Calculating the elliptic orbits of double stars with  $90^\circ$  inclination. (Spanish) (See **85g:00026**)
- Du, Sheng Yun See Zheng, Xue Tang; et al., (Not in MR)
- Ferrini, Federico (with Marchesoni, Fabio) Stochastic models for the evolution of open stellar systems. **85m:85003**
- Geroyannis, V. S. Rotational dynamics of celestial bodies: generalized rotation and considerations of angular momentum. **85h:85001**
- Gurzadyan, V. G. (with Savvidi, G. K.) On the problem of relaxation of stellar systems. (Russian) **85k:85001**
- He, Xiang Tao See Zheng, Xue Tang; et al., **85c:85005a** and Tong, Yi; et al., **85c:85005b**
- Huang, Jie Hao See Zheng, Xue Tang; et al., (Not in MR)
- Hunter, C. Galactic dynamics. **85m:85004**
- Kandrup, Henry E. Galaxy clustering in two dimensions: some analytic results. **85h:85002**
- Kopal, Zdeněk (with Song, Guo Xuan) Vibrational stability of the components of close binary systems. **85a:85002**
- (with Song, Guo Xuan) Roche limit for homogeneous incompressible masses. **85f:85003**
- Livio, Mario See Abramowicz, Marek A.; et al., **85c:85002**
- Luwel, M. See Severne, G., **85f:85004**
- Marchesoni, Fabio See Ferrini, Federico, **85m:85003**
- Peng, Qiu He See Zheng, Xue Tang; et al., **85c:85005a**; (Not in MR) and Tong, Yi; et al., **85c:85005c**
- Pesnell, W. Dean See Buchler, J. R., **85f:85002**
- Pétiz Calvo, Felipe See Docobo Durantes, José Angel, (**85g:00026**)
- Piran, Tsvi See Abramowicz, Marek A.; et al., **85c:85002**
- Ratcliff, Stephen J. (with Chang, Kar Man; Schwarzschild, M.) Stellar orbits in angle variables. **85h:85003**
- Regev, O. See Buchler, J. R., **85c:85003**
- Savvidi, G. K. See Gurzadyan, V. G., **85k:85001**
- Schulman, L. S. Propagating stochastic star formation and galactic structure. **85b:85002**
- Schwarzschild, M. See Ratcliff, Stephen J.; et al., **85h:85003**
- Severne, G. (with Luwel, M.) A new approach to the relaxation process in gravitational systems. **85f:85004**
- Song, Guo Xuan See Kopal, Zdeněk, **85a:85002** and **85f:85003**
- Todoran, Ioan On the orbital eccentricity and inclination of an eclipsing binary system. (Romanian summary) **85c:85004**
- Tong, Yi (with Zheng, Xue Tang; He, Xiang Tao) The perturbed gravitational acceleration of disklike galaxies with finite thickness. (Chinese. English summary) **85c:85005b**
- (with Zheng, Xue Tang; Peng, Qiu He) The distribution of matter in disk galaxies. (Chinese. English summary) **85c:85005c**
- Solution of the dispersion of the velocities of stars in the disks of spiral galaxies. (Chinese. English summary) **85c:85005d**
- See also Zheng, Xue Tang; et al., **85c:85005a** and (Not in MR)
- Tremaine, Scott (with Weinberg, Martin D.) Dynamical friction in spherical systems. **85f:85005**
- Turakulov, Z. Ya. Equilibrium of collisionless gravitating sphere and disk. **85i:85002**
- Weinberg, Martin D. See Tremaine, Scott, **85f:85005**
- Weng, Shi Da See Chen, Zhen Cheng; et al., (Not in MR)
- Wiita, Paul J. See Abramowicz, Marek A.; et al., **85c:85002**
- Xu, Mei See Chen, Zhen Cheng; et al., (Not in MR)
- Zheng, Xue Tang (with Tong, Yi; He, Xiang Tao; Peng, Qiu He) The perturbed gravitational potential of disklike galaxies with finite thickness. (Chinese. English summary) **85c:85005a**
- (with Tong, Yi; Du, Sheng Yun; Peng, Qiu He; Huang, Jie Hao) Structure of the rotating arms of a disc-shaped galaxy of finite thickness. (Chinese) (Not in MR)
- See also Tong, Yi; et al., **85c:85005b** and **85c:85005c**

## secondary classifications (85A05)

- Contopoulos, G. Inverse Feigenbaum bifurcations in Hamiltonian systems. **85b:58091**
- Evangelidis, E. A. (with Neethling, J. D.) The Gaussian curvature of associated manifold of dynamical systems. **85k:70005**
- Lu, Kau Un A mathematical solution of general relativistic binary systems. **85a:83011**
- Neethling, J. D. See Evangelidis, E. A., **85k:70005**
- Nishimoto, Toshihiko Generalized boundary value problem and its application to the density wave theory of spiral galaxies. **85f:34041**
- Stellmacher, I. Systèmes hamiltoniens au voisinage d'une solution d'équilibre. I. Orbits périodiques dans les cas résonnants. (English summary) [Hamiltonian systems in the neighbourhood of an equilibrium solution. I. Periodic orbits in cases of resonance] **85j:58062**

## 85A15 Stellar structure

- Blacher, S. See Perdang, J., **85k:85002**
- Buchler, J. R. (with Goupil, Marie-Jo) Amplitude equations for nonadiabatic nonlinear stellar pulsators. I. The formalism. **85c:85001**
- Goupil, Marie-Jo See Buchler, J. R., **85c:85001**
- Grigoryan, S. D. Geometric investigation of conical flows of a gravitating gas. (Russian. Armenian summary) **85e:85002**
- Mohan, C. (with Saxena, R. M.) Use of variational principle in the study of the effects of rotational and tidal distortions on the periods of small oscillations of gaseous spheres. (Not in MR)
- Perdang, J. (with Blacher, S.) Nonlinear stellar oscillations. Multimode interactions. **85k:85002**
- Saxena, R. M. See Mohan, C., (Not in MR)
- Schmits, F. The structure, stability, and form of marginally stable axisymmetric perturbations of rotating gas clouds with simple conormal density distributions. I. General features and analytical solutions. **85b:85003**
- Shieh, S. Y. Lagrange equations for a spinning gas cloud. **85f:85006**
- secondary classifications (85A15)
- Bogdanov, I. V. Classical inversion algorithms for a spherically symmetric gravitational field. (Russian. English summary) **85k:83021**
- Eriguchi, Yoshiharu (with Hachisu, Isumi) Gravitational equilibrium of a multibody fluid system. **85c:85001**
- Hachisu, Isumi See Eriguchi, Yoshiharu, **85c:85001**
- Kopal, Zdeněk (with Song, Guo Xuan) Vibrational stability of the components of close binary systems. **85a:85002**
- Lebovitz, N. R. On the fission theory of binary stars. III. The formulation of the bifurcation problem. **85k:85003**
- On the fission theory of binary stars. IV. Exact solutions in polynomial spaces. **85k:85004**
- Rosen, Nathan The field of a particle in general relativity theory. (See **85m:83002**)
- Rosenau, Philip A note on integration of the Emden-Fowler equation. **85h:34012**
- Song, Guo Xuan See Kopal, Zdeněk, **85a:85002**

## 85A20 Stellar atmospheres

## secondary classifications (85A20)

- Jackson, E. Atlee Radiation reaction dynamics in an electromagnetic wave and constant electric field. **85i:78007**
- 85A25 Radiative transfer
- Akshie, A. Sh. A problem of V. S. Vladimirov in the theory of radiation transport. (Russian. English and Czech summaries) **85h:85004**
- Andreev, E. S. (with Kosmanov, M. Yu.; Rachilov, E. B.) Exact solution of systems of radiation transport equations with discontinuity on the boundary between two media. (Russian) **85b:85004**
- Das Gupta, Santanu See Das Gupta, Santi Ranjan, **85f:85007**
- Das Gupta, Santi Ranjan (with Das Gupta, Santanu) The H-functions of radiative transfer in an active amplifying medium. **85f:85007**
- Hovenier, J. W. (with van der Mee, C. V. M.) Fundamental relationships relevant to the transfer of polarized light in a scattering atmosphere. **85a:85003**
- Kazakov, A. Ya. Inverse problems for linear radiative transfer in a plane medium. (Russian) **85k:85003**
- An inverse problem of the linear theory of radiation transport. (Russian) **85f:85008**
- Kosmanov, M. Yu. See Andreev, E. S.; et al., **85b:85004**
- van der Mee, C. V. M. See Hovenier, J. W., **85a:85003**
- Rachilov, E. B. See Andreev, E. S.; et al., **85b:85004**
- Roberge, W. G. The spherical harmonics solution for the radiation field in plane-parallel clouds with embedded sources. **85b:85005**
- Rogovtsov, N. N. Invariance relations and problems of transport theory for media of complex configuration. (Russian. English summary) **85a:85004**
- Syavavko, M. S. Representation of the solution by an integral continued fraction of Ambartsumyan-Chandrasekhar equations for radioactive radiation. (Russian) (See **85k:35001**)

## secondary classifications (85A25)

- Bardos, Claude (with Santos, Rafael; Sentis, Rémi) Sur le problème de Milne conservatif. (English summary) [The Milne problem in the conservative case] **85j:35162**
- Daniel, Ramzi (with Pomraning, G. C.; Larsen, E. W.) On the completeness of elementary solutions of the transport equation for an exponential atmosphere. **85h:82044**
- Dudley, David (with Wang, Alan P.) Operator theory on the WKB method and Bremmer series. **85h:81020**
- Golse, François (with Perthame, Benoît) Existence globale d'une solution généralisée pour les équations du transfert radiatif. (English summary) [Global existence of a generalized solution for radiative transfer equations] **85m:45012**
- Kalehbaeva, G. K. (with Sultangazin, U. M.) Marchuk's integral identity method for solution of a nonstationary problem of transport theory. (Russian. Kazakh summary) **85d:82116**
- Kazakov, A. Ya. Inverse problems of the theory of radiation transport in a ball and a cylinder. (Russian) **85h:35223**
- Kelley, C. T. Energy-dependent radiative transfer in inhomogeneous slabs. **85d:82117**
- Applications of the  $F_N$  method to transport calculations. **85m:82140**
- Larsen, E. W. See Daniel, Ramzi; et al., **85h:82044**
- Perthame, Benoît See Golse, François, **85m:45012**



- Pomraning, G. C. See Daniel, Ramsi; et al., 85h:82044  
 Santos, Rafael See Bardos, Claude; et al., 85j:35163  
 Smith, Rémi See Bardos, Claude; et al., 85j:35163  
 Sultangazin, U. M. See Kalshibaeva, G. K., 85d:82118  
 Wang, Alan P. See Dudley, David, 85h:81830

### 85A30 Hydrodynamic and hydromagnetic problems [See also 76Y05.]

- van Ballegoijen, A. A. See Spruit, H. C., 85a:85006a and 85a:85006b  
 Browning, P. K. (with Priest, E. R.) Kelvin-Helmholtz instability of a phase-mixed Alfvén wave. 85g:85001  
 Chen, Dao Han (with Liu, Lin Zhong) Helical wave and K-H instability in type I comet tails. I. Waves of infinitesimal amplitude in incompressible plasma. 85b:85006a  
 See also Liu, Lin Zhong, 85b:85006b  
 Derner, Charles D. The production spectrum of a relativistic Maxwell-Boltzmann gas. 85c:85004  
 Distler, J. See Tsinganos, K. C.; et al., 85f:85010  
 Fujimura, F. S. See Kennel, C. F.; et al., 85c:85006  
 Gallet, B. Stability of self-similar flow. The Primakoff solutions. 85h:85005  
 Hu, Wen Rui The magnetostatic relations including fluctuation fields. 85f:85009  
 Static equilibrium of nonaxisymmetric magnetic fields with weak torsion. (Chinese) (Not in MR)  
 See also Li, Zhong Yuan, (Not in MR)  
 Kennel, C. F. (with Fujimura, F. S.; Okamoto, I.) Relativistic magnetohydrodynamic winds of finite temperature. 85c:85006  
 Lebovitz, N. R. On the fusion theory of binary stars. III. The formulation of the bifurcation problem. 85k:85003  
 On the fusion theory of binary stars. IV. Exact solutions in polynomial spaces. 85k:85004  
 Li, Zhong Yuan (with Hu, Wen Rui) The state of motion of a plasma in a force-free field. (Chinese) (Not in MR)  
 Liu, Lin Zhong (with Chen, Dao Han) Helical wave and K-H instability in type I comet tails. II. Waves of infinitesimal amplitude in compressible plasma. 85b:85006b  
 See also Chen, Dao Han, 85b:85006a  
 Molchanov, S. A. (with Tutubalin, V. N.) A linear model of a hydromagnetic dynamo, and products of random matrices. (Russian) 85m:85005  
 Okamoto, I. See Kennel, C. F.; et al., 85c:85006  
 Priest, E. R. See Browning, P. K., 85g:85001  
 Remorini, Giovanna Gravitational instability according to Jeans. (Italian. English summary) 85c:85007  
 Rosner, R. See Tsinganos, K. C.; et al., 85f:85010  
 Singh, V. K. See Verma, B. G.; et al., 85f:85011  
 Spruit, H. C. (with van Ballegoijen, A. A.) Stability of toroidal flux tubes in stars. 85a:85006a  
 (with van Ballegoijen, A. A.) Erratum: "Stability of toroidal flux tubes in stars". 85a:85006b  
 Srivastava, R. C. See Verma, B. G.; et al., 85f:85011  
 Trehan, Surinder K. Self-gravitating configurations with magnetic fields. (Arabic summary) 85l:85003  
 Tremaine, Scott See Weinberg, Martin D., 85h:85005a  
 Tsinganos, K. C. (with Distler, J.; Rosner, R.) On the topological stability of magnetostatic equilibria. 85f:85010  
 Tutubalin, V. N. See Molchanov, S. A., 85m:85005  
 Verma, B. G. (with Srivastava, R. C.; Singh, V. K.) Strong cylindrical magnetogasdynamical shock waves in a rotating interplanetary medium. 85f:85011  
 Weinberg, Martin D. (with Tremaine, Scott) The Riemann disks. I. Equilibrium and secular evolution. 85k:85005a  
 The Riemann disks. II. Stability. 85k:85005b  
 Xu, Nai Hual Similar solutions of force-free magnetic fields. (Chinese) (Not in MR)

#### secondary classifications (85A30)

- Barberis, B. See Galletto, D., 85f:85014  
 Forrester, P. J. Interpretation of an exactly solvable two-component plasma. 85k:82029  
 Galletto, D. (with Barberis, B.) Characterization of fluid motions satisfying a certain property of the Newtonian field. (Italian) 85f:85014  
 Holm, Darryl D. (with Kupershmidt, B. A.) Planar incompressible Yang-Mills magnetohydrodynamics. 85m:76078  
 Hunter, C. Galactic dynamics. 85m:85004  
 Kats, Joseph Relativistic potential vorticity. 85e:70068  
 Kupershmidt, B. A. See Holm, Darryl D., 85m:76078  
 Singh, H. N. Propagation of a shock wave in relativistic magnetofluids. 85e:83038  
 Singh, H. P. See Singh, Shesh Nath, 85h:70052  
 Singh, J. B. (with Vishwakarma, P. R.) Self-similar flows behind cylindrical shock waves in magnetogasdynamics. 85a:70009  
 Singh, Shesh Nath (with Singh, H. P.) On geometrization of steady rotating hydromagnetic flows. 85h:70052  
 Solov'ev, L. S. Gas dynamics in general relativity. (Russian) 85f:83041  
 Vishwakarma, P. R. See Singh, J. B., 85a:70009

### 85A35 Statistical astronomy

- Carrasco, L. (with Roth, Miguel Ricardo; Serrano, A.) Density scaling of the angular momentum versus mass universal relationship. 85d:85001  
 Efsthaliou, G. Fractals and cosmology. 85c:85008  
 Matsuda, Takuya (with Shima, Eiji) Topology of supercluster-void structure. 85f:85012  
 Roth, Miguel Ricardo See Carrasco, L.; et al., 85d:85001  
 Schaeffer, R. Determination of the galaxy  $N$ -point correlation function. 85i:85004  
 Serrano, A. See Carrasco, L.; et al., 85d:85001  
 Shima, Eiji See Matsuda, Takuya, 85f:85012

#### secondary classifications (85A35)

- Sheinin, O. B. On the history of the statistical method in astronomy. 85d:01006  
 85A40 Cosmology [For relativistic cosmology, see 83F05.]  
 Arnold, V. I. Some algebro-geometrical aspects of the Newton attraction theory. 85c:85009  
 Barberis, B. (with Galletto, D.) Newtonian and relativistic Bianchi I models of the universe. (See 85k:83002)  
 See also Galletto, D., 85f:85014  
 (Doroshkevich, A. G.) See Peebles, P. J. E., 85c:85010  
 Fillmore, James A. (with Goldreich, Peter) Self-similar gravitational collapse in an expanding universe. 85f:85013a  
 (with Goldreich, Peter) Self-similar spherical voids in an expanding universe. 85f:85013b  
 Galletto, D. (with Barberis, B.) Characterization of fluid motions satisfying a certain property of the Newtonian field. (Italian) 85f:85014  
 See also Barberis, B., (85k:83002)  
 Goldreich, Peter See Fillmore, James A., 85f:85013a and 85f:85013b  
 (Klypin, A. A.) See Peebles, P. J. E., 85c:85010  
 Matzner, R. A. See Tolman, B. W., 85b:85007  
 Muehs, C. Some current dilemmas in applied physical mathematics with some solutions. 85i:85005  
 Peebles, P. J. E. ★ Структура вселенной в больших масштабах. (Russian) [The large-scale structure of the universe] 85c:85010  
 Thatcher, A. R. Newtonian cosmology and Friedmann's equation. (French summary) 85a:85006  
 Tolman, B. W. (with Matzner, R. A.) Large scale anisotropies and polarization of the microwave background radiation in homogeneous cosmologies. 85b:85007  
 Zel'dovich, Ya. B. Topological and percolation properties of potential mapping with glueing. 85g:85002

#### secondary classifications (85A40)

- Berezin, V. A. (with Kus'min, V. A.; Tkachev, I. I.) Dissipative phase separation boundaries. 85m:83084  
 Burdet, G. (with Duval, C.; Perrin, Martine Jacqueline) Cartan structures on Galilean manifolds: the chronoprojective geometry. 85b:53030  
 Duval, C. See Burdet, G.; et al., 85b:53030  
 Grishchuk, L. P. (with Zel'dovich, Ya. B.) Complete cosmological theories. (See 85g:83004)  
 Hellaby, Charles (with Lake, Kayll) The redshift structure of the big bang in inhomogeneous cosmological models. I. Spherical dust solutions. 85i:83062  
 Kibble, T. W. B. Phase transitions in the early universe. (See 85g:83004)  
 Kus'min, V. A. See Berezin, V. A.; et al., 85m:83084  
 Lake, Kayll See Hellaby, Charles, 85i:83062  
 Perrin, Martine Jacqueline See Burdet, G.; et al., 85b:53030  
 Segal, I. E. Evolution of the inertial frame of the Universe. (Italian and Russian summaries) 85e:83080  
 Souriau, Jean-Marie Un modèle d'univers confronté aux observations. [A model of the universe confronted with observations] 85h:83087  
 Taraki, Jan Segal's mechanism for the red shift and its physical bases. 85e:83047  
 Tkachev, I. I. See Berezin, V. A.; et al., 85m:83084  
 Treder, H.-J. Isotrope und homogene Materie—"Kosmos". (English summary) [Isotropic and homogeneous matter—"cosmos"] 85b:83078  
 Vilenkin, Alexander V. Cosmic strings as gravitational lenses. 85f:83080  
 Wainwright, J. Power law singularities in orthogonal spatially homogeneous cosmologies. 85b:83027  
 Zel'dovich, Ya. B. See Grishchuk, L. P., (85g:83004)

### 85A45 Radio astronomy

- Konyukov, M. V. Obtaining approximations to the radio brightness distribution from observations on aperture synthesis systems. 85j:85001

#### secondary classifications (85A45)

- Bol'tyanakii, V. G. Behavior at infinity of optimal trajectories of an object. (Russian) 85d:49023

### 85A99 Miscellaneous topics

#### secondary classifications (85A99)

- Shcherbak, V. F. Conditions for identifiability of dynamic systems. (Russian) 85g:93029

## 86-XX GEOPHYSICS [See also 73Nxx, 76U05, 76V05.]

### 86-01 Elementary exposition; textbooks

#### secondary classifications (86-01)

- (Drumlich, F.) See Pellinen, L. P., 85h:86008  
 Pellinen, L. P. ★ Theoretische Geodäsie. (German) [Theoretical geodesy] 85h:86008

### 86-02 Advanced exposition (research surveys, monographs, etc.)

- Hutter, Kolumban ★ Theoretical glaciology. 85e:86001

- 86-03 Historical (must also be assigned at least one classification number from Section 01)

secondary classifications (86-03)

- Dement'ev, L. F. (with Teterev, I. G.) Geology. (Russian) (See 85g:01004)  
 Dorodnitsyn, A. A. Geophysics. (Russian) (See 85g:01004)  
 (Jeffreys, Harold) See Lapwood, E. R., (Not in MR)  
 Lapwood, E. R. Contributions of Sir Harold Jeffreys to theoretical geophysics. (Not in MR)  
 Teterev, I. G. See Dement'ev, L. F., (85g:01004)  
 Vogel, Kurt Ein Vermessungsproblem reist von China nach Paris. (English summary)  
 [A surveying problem travels from China to Paris] 85a:01080

- 86-06 Proceedings, conferences, etc.

secondary classifications (86-06)

- (Holloway, Greg) See Predictability of fluid motions, 85f:76001  
 (West, Bruce J.) See Predictability of fluid motions, 85f:76001  
 La Jolla, Calif. ★ Predictability of fluid motions. 85f:76001  
 Predictability of fluid motions ★ Predictability of fluid motions. 85f:76001  
 Symposium:  
 Predictability of fluid motions ★ Predictability of fluid motions. 85f:76001

- 86-08 Computational methods

- Heideman, J. C. See Miele, A.; et al., 85m:86001  
 Lantz, R. B. See Sykes, J. F.; et al., (85i:00014)  
 Miele, A. (with Wang, T.; Heideman, J. C.; Sharma, J. N.) Wave parameter identification problem for ocean test structure data. I. Continuous formulation. 85m:86001  
 Moon, Woolf See Tang, Roger, 85f:86001  
 Navon, I. M. A Numerov-Galerkin technique applied to a finite-element shallow-water equations model with enforced conservation of integral invariants and selective lumping. 85e:86002  
 Pahwa, S. B. See Sykes, J. F.; et al., (85i:00014)  
 Sharma, J. N. See Miele, A.; et al., 85m:86001  
 Sykes, J. F. (with Pahwa, S. B.; Ward, D. S.; Lantz, R. B.) The validation of SWENT, a geosphere transport model. (See 85i:00014)  
 Tang, Roger (with Moon, Woolf) Finite difference transient sea surface modelling for the SEASAT altimeter data correction. 85f:86001  
 Wang, T. See Miele, A.; et al., 85m:86001  
 Ward, D. S. See Sykes, J. F.; et al., (85i:00014)  
 Watson, G. S. Smoothing and interpolation by Kriging and with splines. 85i:86001

secondary classifications (86-08)

- Berkowicz, Ruwim See Zlatev, Zahari; et al., 85h:65204 and 85i:86006  
 Carswell, Allan (with Moon, Woolf) A use of the Radon transform in geophysics. 85h:86004  
 Foreman, M. G. G. An analysis of the "wave equation" model for finite element tidal computations. 85e:86003  
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 Moon, Woolf Evolution of variational type finite element method in whole earth geodynamics. 85a:86003  
 See also Carswell, Allan, 85h:86004  
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 Temperton, Clive Fast mixed-radix real Fourier transforms. 85c:65162  
 Zlatev, Zahari (with Berkowicz, Ruwim; Prahm, Lars P.) Stability restrictions on time-stepsize for numerical integration of first-order partial differential equations. 85h:65204  
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- (Dunn, Mark R.) See Myers, Donald E., (Not in MR)  
 Myers, Donald E. Comment: "A simple sufficient condition for a variogram model to yield positive variances under restrictions" [J. Internat. Assoc. Math. Geol. 15 (1983), no. 4, 553-564; MR 84k:62136] by M. R. Dunn. (Not in MR)

- 86A05 Hydrology, hydrography, oceanography [See also 76B15, 76B20, 76B25, 76C15, 76E20, 76Q05, 76R05, 76U05.]

- Abdullaev, S. A. (with Zaslavskii, G. M.) Nonlinear and stochastic dynamics of rays in regular transversely inhomogeneous media. 85k:86001  
 Bubnov, M. A. See Marchuk, G. I.; et al., (85e:00013)  
 Budden, P. J. (with Norbury, J.) Stability of a subcritical flow under a sluice gate. 85b:86001  
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- Dendrou, Stergios A. (with Dendrou, Basile A.; Moore, Charles I.) Comparison of a distributed parameter and a boundary integral model of long period ocean waves. (See 85g:93006)  
 Foreman, M. G. G. An analysis of the "wave equation" model for finite element tidal computations. 85e:86003  
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 Kizner, Z. I. Rossby solitary waves with axially symmetric baroclinic modes. (Russian) 85g:86001  
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 Lee, Ding (with McDaniel, Susanne T.) Wave field computations on the interface: an ocean acoustic model. 85k:86002  
 Marchuk, G. I. (with Bubnov, M. A.; Zalesnyi, V. B.; Kordsadze, A. A.) Mathematical modeling of sea currents, tidal waters and development of numerical algorithms. (Russian) (See 85e:00013)  
 Mattioli, F. Variational formulations, integral approaches and series expansion techniques for linear water waves. (Italian and Russian summaries) 85h:86001  
 McDaniel, Susanne T. See Lee, Ding, 85k:86002  
 Miller, Robert N. Forecasting the ocean's weather: numerical models for application to oceanographic data. (See 85g:58006)  
 Moore, Charles I. See Dendrou, Stergios A.; et al., (85g:93006)  
 Mosetti, R. A Kalman-filter estimate of the tidal harmonic constants. (Italian and Russian summaries) 85b:86002  
 Navarra, A. (with Speranza, A.) Coexistence of stochasticity and determinism in simple truncated models of barotropic flow in  $\beta$ -planes. (See 85f:76001)  
 Norbury, J. See Budden, P. J., 85b:86001  
 Ols, J. L. Identification de paramètres dans les modèles vectoriels non linéaires et application à un problème d'hydrologie. (English summary) [Parameter identification in a nonlinear vector model and application to hydrology] 85a:86001  
 Ostrovskii, A. G. See Piterburg, L. I., 85i:86003  
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 Provost, Christine Les méthodes inverses en océanographie. La méthode variationnelle inverse pour estimer la circulation générale de l'océan. [Inverse methods in oceanography. The inverse variational method for estimating the general circulation of the ocean] (See 85k:00010)  
 Ripa, P. Harmonics resonance and chaos in the equatorial waveguide. (See 85f:76001)  
 Rudchenko, P. A. Analytic solution of a class of problems of migration of polluted subterranean water leaving diffusion processes out of account. (Russian) 85b:86003  
 Speranza, A. See Navarra, A., (85f:76001)  
 Tin, Bôl An On a free boundary problem for the equations of tidal motions. 85h:86002  
 Weir, G. J. The asymptotic behaviour of simple kinematic waves of finite volume. 85f:86002  
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 Zarinin, A. G. Continuous dependence of solutions of equations of wind currents in the ocean on data of the problem and their behavior as  $t \rightarrow \infty$ . (Russian) 85h:86003  
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- Basovich, A. Ya. (with Taimring, L. Sh.) Internal waves in a horizontally inhomogeneous flow. 85m:76069  
 Chen, Si Xiong The added mass matrix of a partially submerged oscillating cylinder, and the radiative damping matrix. (Chinese) (Not in MR)  
 Ėkhal Lakshminarayanan, S. The first boundary value problem for a degenerate system of equations of atmospheric and oceanic dynamics with variable coefficients. (Russian) 85d:86004  
 Grigor'eva, N. S. Short-wave asymptotic behavior of the solution of the problem of a point source in an inhomogeneous moving medium. (Russian. English summary) 85m:76053  
 Kapoulitsas, George M. Propagation of long waves into a set of parallel vertical barriers on a rotating earth. 85b:76010  
 Kirwan, A. D., Jr. A note on a geophysical fluid dynamics variational principle. 85b:76063  
 Lavrent'ev, M. M. (with Resnitskaya, K. G.; Yakhno, V. G.) ★ Одномерные обратные задачи математической физики. (Russian) [One-dimensional inverse problems of mathematical physics] 85g:35119  
 Liu, Shi Da See Liu, Shi Kuo, 85b:76011  
 Liu, Shi Kuo (with Liu, Shi Da) Nonlinear waves in geophysical fluid. 85b:76011  
 Merkin, L. (with Shitlan, L.) Explosive instability of baroclinic waves. 85k:76019  
 Moon, Woolf See Tang, Roger, 85f:86001  
 Nesterov, S. V. Natural frequencies of internal waves in a liquid with an arbitrary Brunt-Väisälä frequency. (Russian) 85d:76006  
 Proust, Giovanni Errata-corrige to the paper: "Analysis of a three-dimensional mathematical model of water circulation in a basin" [Rend. Accad. Naz. Sci. XL Mem. Mat. 5 (1981/82), 13-36; MR 84e:35127]. 85b:35048  
 Renard, Yuriy Weakly nonlinear interactions and wave trapping. 85a:76034  
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 Shitlan, L. See Merkin, L., 85k:76019  
 Tang, Roger (with Moon, Woolf) Finite difference transient sea surface modelling for the SEASAT altimeter data correction. 85f:86001  
 Taimring, L. Sh. See Basovich, A. Ya., 85m:76069  
 Weinberg, Henry Green's function continuation for acoustic propagation in range-dependent environments. 85a:76088  
 Weinstein, Alan D. Hamiltonian structure for drift waves and geostrophic flow. 85d:58035

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**86A10 Meteorology** [See also 76Bxx, 76C15, 76E20, 76N15, 76Q05, 76Rxx, 76U05, 76V05.]

Bennett, A. F. Predictability and frontogenesis. 85g:86002

(Barger, A.) See Godart, O., 85g:86003

Chen, Guo Fan A method of choosing similar synoptic charts based on fuzzy preference ratios. (Chinese. English summary) (Not in MR)

Flierl, G. R. See Rambaldi, S., 85b:86004

Ghil, M. (with Tavantzis, J.) Global Hopf bifurcation in a simple climate model. 85c:86001

Godart, O. Meteorological equations in isobaric coordinates. 85g:86003

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Loesch, Arthur Z. See Nathan, Terrence R., 85f:86003

Nathan, Terrence R. (with Loesch, Arthur Z.) Resonant interactions between unstable and neutral baroclinic waves in a continuous model of the atmosphere. 85f:86003

Rambaldi, S. (with Flierl, G. R.) Form drag instability and multiple equilibria in the barotropic case. (Italian and Russian summaries) 85b:86004

Riphagen, H. A. Numerical weather prediction. (See 85b:85002)

Lateral boundary conditions for a limited area numerical weather prediction model. (See 85b:85007)

Stanforth, A. N. The application of the finite-element method to meteorological simulations—a review. 85c:86002

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Yao, Di Rong (with Liu, Yue Zhen) The nonlinear discriminant function in weather prediction. (Chinese. English summary) 85d:86002

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(Cao, Zhi Qiang) See Wang, Pei Zhuang, 85g:03080

Dee, D. (with Ghil, M.) Boolean difference equations. I. Formulation and dynamic behavior. 85c:92004

Finanigan, J. J. A streamline coordinate system for distorted two-dimensional shear flows. 85a:76053

Gachok, P. V. Dynamical systems with strange attractor. (Russian. English summary) 85h:58103

Ghil, M. See Dee, D., 85c:92004

(Ma, Mou Chao) See Wang, Pei Zhuang, 85g:03080

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Navon, I. M. A Numerov-Galerkin technique applied to a finite-element shallow-water equations model with enforced conservation of integral invariants and selective lumping. 85c:86002

Okubo, Akira (with Andreasen, Viggo; Mitchell, James) Chaos-induced turbulent diffusion. 85j:58106

(Qian, Min Ping) See Wang, Pei Zhuang, 85g:03080

Rauh, A. See Andrade, R. F. S., 85d:86048

(Ren, Ping) See Wang, Pei Zhuang, 85g:03080

Rowlands, George An approximate analytic solution of the Lorenz equations. 85f:58079

Rosendorn, E. R. Some classes of particular solutions of the equation  $z_{xx}z_{yy} - z_{xy}^2 + \alpha \nabla z = 0$  and their application to problems of meteorology. (Russian) 85f:35045

Sekhar-Zen'kovich, S. Ya. Cauchy problem for equations of internal waves. 85d:76028

Tian, Bei An On a nonlinear initial-boundary value problem of meteorology. 85i:35135

Wang, Pei Zhuang ★ Mohu jìhétun jì qí yíngyong. (Chinese) [Fuzzy set theory and its applications] 85g:03080

(Xu, Wen Li) See Wang, Pei Zhuang, 85g:03080

(Yuan, Meng) See Wang, Pei Zhuang, 85g:03080

(Zhong, Chong Ji) See Wang, Pei Zhuang, 85g:03080

**86A15 Seismology** [See also 73Dxx, 73Fxx, 73Mxx, 73Nxx, 73Q05.]

Abramovici, Flavian The exact solution to the problem of an SH pulse in a layered elastic half-space. 85e:86004

Abu-Safiya, A. S. M. See Kazi, M. H., 85g:86004

Alekseev, A. S. (with Bubnov, B. A.) Stability of the solution of an inverse problem of coupled seismology and gravimetry. (Russian) 85j:86001

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Carroll, Robert Wayne (with Santosa, Fadil) Spectral measures and autocorrelation via transmutation. 85e:86005

Carwell, Allan (with Moon, Woolf) A use of the Radon transform in geophysics. 85h:86004

Daley, P. F. (with Hron, F.) Nongeometric arrivals due to highly concentrated sources adjacent to plane interfaces. 85f:86004

Hron, F. See Daley, P. F., 85f:86004

Kazi, M. H. (with Abu-Safiya, A. S. M.) Spectral representation of the Love wave operator for two layers over a half-space. 85g:86004

Moon, Woolf Evolution of variational type finite element method in whole earth geodynamics. 85a:86003

See also Carwell, Allan, 85h:86004

Morgan, Thomas R. ★ Foundations of wave theory for seismic exploration. 85g:86005

Nurshamsaev, O. Propagation of Love waves in a prestressed medium with internal friction. (Russian) 85f:86005

Razum, A. G. Inverse scattering for geophysical problems. 85c:86003

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Antonov, V. A. Modeling of processes of cyclic evolution type. Synchronization by a random signal. (Russian. English summary) 85f:85001

Chen, Yung Ming (with Liu, Jia Qi) An iterative numerical algorithm for solving multiparameter inverse problems of evolutionary partial differential equations. 85i:85124

Grikurov, V. E. (with Popov, M. M.) Summation of Gaussian beams in a surface waveguide. 85a:73029

Gu, Ji Cheng (with Li, Shuang) The far-field displacements radiated from a circular dislocation expanding with uniformly varying velocity. II. (Chinese. English summary) 85c:73064

Kondaurov, V. I. (with Nikitin, L. V.) Propagation of nonlinear seismic waves in media with elasticity, viscosity and plasticity properties. (Russian) 85k:73088

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Liu, Jia Qi See Chen, Yung Ming, 85i:85124

Mal'tsev, N. E. Ray equations in barycentric coordinates. 85c:76053

Nikitin, L. V. See Kondaurov, V. I., 85k:73088

Ponomarev, S. M. An ill-posed problem in the theory of finite-amplitude waves in elastic dissipative media. (Russian) 85d:73011

Popov, M. M. A method of summation of Gaussian beams in the isotropic theory of elasticity. (Russian) 85c:73015

See also Grikurov, V. E., 85a:73029

Zinchenko, Zh. F. On the directed seismic radiation from cylindrical cavities. (Russian) 85c:73066

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Brodakii, M. A. Uniqueness in the inverse problem of gravimetry for homogeneous polyhedra. (Russian) 85h:86005

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Chen, Ying Tian (with Wang, Qin) On the significance of the axial Newtonian gravitational force of the finite cylinder. 85h:86006

Chulkova, N. A. New proof of the convergence of the Laplace series on the physical surfaces of planets. (Russian) 85j:86002

Georgiev, G. E. Method for plotting consecutive quasisolutions of inverse, 3-dimensional, gravimetric problems. 85k:86003

Ivanov, S. N. See Strakhov, V. N., 85e:86006 and (85e:00013)

Khrushov, E. Ya. An inverse scattering problem for an equation of electric geophysical exploration. (Russian) 85m:86003

Margulis, A. S. Uniqueness of the solution of an inverse problem of gravitation prospecting for structural models. (Russian) 85d:86003

Novak, V. I. See Vinokurov, V. A., 85k:86004

Oganeyan, S. M. (with Starostenko, V. I.)  $L$ -pseudosolutions and their use for construction of bodies with zero external gravitational field. (Russian) 85c:86004

Pritchett, B. P. Characteristic of certain linear integral coring operators. Inverse operators. (Russian) 85f:86006

Romanov, M. E. (with Sharafutdinov, V. A.) Local determination of a hodograph and some relations in kinematics problems of seismics. (Russian) (See 85d:00014)

Sharafutdinov, V. A. See Romanov, M. E., (85d:00014)

Soler, Tomás A new matrix development of the potential and attraction at exterior points as a function of the inertia tensors. 85f:86007

Starostenko, V. I. See Oganeyan, S. M., 85c:86004

Strakhov, V. N. (with Ivanov, S. N.) The method of analytic continuation of potential fields. (Russian) (See 85e:00013)

(with Brodakii, M. A.) On the problem of uniqueness in plane inverse problems of gravimetry and magnetometry. (Russian) 85h:86007

(with Ivanov, S. N.) Regularized finite-difference algorithms for reconstruction of function and their use in geophysics. (Russian) 85e:86006

Vinokurov, V. A. (with Novak, V. I.) Estimate of the dimensions of a gravitating mass by an external field. (Russian) 85k:86004

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Ye, Nai Ying Calculation of the potential in a dipping bed field with a point source. (Chinese. English summary) 85f:86008

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Bubnov, B. A. See Alekseev, A. S., 85j:86001

Dmitriev, V. I. See Tikhonov, A. N.; et al., 85b:00013

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Hald, Ole H. Discontinuous inverse eigenvalue problems. 85j:34037

Luan, Wen Gui The stabilized algorithm of analytic continuation for a potential field. (Chinese. English summary) 85a:31002

Tikhonov, A. N. (with Dmitriev, V. I.; Glasko, V. B.) ★ Математические методы в разведке полезных ископаемых. (Russian) [Mathematical methods in prospecting for useful minerals] 85b:00013

Tsutsokho, V. A. See Zapreev, A. S., 85d:35107

Zapreev, A. S. (with Tsutsokho, V. A.) Determination of the right-hand side of the Helmholtz equation. (Russian) 85d:35107

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Ivers, D. J. (with James, R. W.) Axisymmetric antidynamo theorems in compressible nonuniformly conducting fluids. 85i:86005

James, R. W. See Ivers, D. J., 85i:86005



- Kunick, A. See Steeb, W.-H.; et al., 85f:86009  
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 Zhdanov, M. S. (with Frenkel', M. A.) Method of migration of electromagnetic fields. (Russian) 85f:86010

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- Berkowicz, Ruwim See Zlatev, Zahari; et al., 85i:86006  
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 Bu, Yu Kang (with Liu, Shi Kuo; Liu, Shi Da) Nonlinear inertia-gravity waves in the atmosphere. (Chinese. English summary) 85b:86009  
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 Li, Rong Feng See Yuan, Chong Guang; et al., 85g:86007  
 Liu, Chong Jian (with Tao, Shi Yan) Northward jumping of subtropical highs and cusp catastrophe. 85a:86004  
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 Moros, Irene M. (with Brindley, John) Soliton behaviour in models of baroclinic instability. (See 85d:76001)  
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 Skorinov, V. N. (with Titov, G. A.) Transfer of optical radiation in a model of broken cloudiness in the form of a Poisson indicator field. 85b:86013  
 Sukhonosov, V. I. A theorem on existence and uniqueness in the large with respect to time for a model of atmospheric dynamics. (Russian) 85d:86005  
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 Wang, Sheng Zhang Instability of a spherical barotropic divergence-free atmosphere. (Chinese) (Not in MR)  
 Warn, T. (with Bransett, B.) The amplification and capture of atmospheric solitons by topography: a theory of the onset of regional blocking. 85a:86005  
 Xiao, Jing Wei (with Zhou, Ming Yu) Development of buoyancy driven mixed layer in boundary atmosphere. 85k:86006  
 Xue, Ji Shan See Li, Mai Cun, 85b:86011  
 Yuan, Chong Guang (with Zhang, Dao Min; Li, Rong Feng) Characteristics of the motion of a rotating fluid, and medium-range processes in the Earth's atmosphere. (Chinese. English summary) 85g:86007  
 Zeng, Qing Cun The evolution of a Rossby-wave packet in a three-dimensional baroclinic atmosphere. 85a:86006  
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- Zlatev, Zahari (with Berkowicz, Ruwim; Prahm, Lars P.) Implementation of a variable stepsize variable formula method in the time-integration part of a code for treatment of long-range transport of air pollutants. 85i:86006

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- Abdullaev, S. A. (with Zaslavskii, G. M.) Nonlinear and stochastic dynamics of rays in regular transversely inhomogeneous media. 85k:86001  
 Basdenkov, S. V. Stability of flows of a homogeneous atmosphere of finite thickness. (Russian) 85c:76027  
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 Grandell, Jan Some remarks on the age distribution of air pollutants. 85c:92041  
 Hovenier, J. W. (with van der Mee, C. V. M.) Fundamental relationships relevant to the transfer of polarized light in a scattering atmosphere. 85a:85003  
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 Merkin, L. (with Shilman, L.) Explosive instability of baroclinic waves. 85k:76019  
 Moros, Irene M. (with Brindley, John) Nonlinear amplitude evolution of baroclinic wave trains and wave packets. 85c:76028  
 Nakazawa, Hiroshi Inviscid disturbance equations in linear stability theory in fluid dynamics and geophysics. 85i:76029  
 Obukhov, A. M. Kolmogorov flow and its laboratory simulation. (Russian) 85c:76045  
 Pavlenko, Yu. G. The method of canonical transformations in classical electrodynamics. (Russian) 85d:78008  
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 de Swart, H. E. ★ Spectral modelling of a potential vorticity equation for a barotropic flow on a beta-plane. 85h:76019  
 Williams, M. M. R. The influence of random fluctuations on the behaviour of an aerosol. 85c:82081  
 Yakimov, A. Yu. Exact solutions of Navier-Stokes equations in the presence of a vortex singularity on a ray. (Russian) 85c:76020  
 Zaslavskii, G. M. See Abdullaev, S. A., 85k:86001

### 86A60 Geological problems

- Alexander, J. Iwan D. See Wolkind, David J., 85a:86008  
 Cressie, Noel See Hawkins, Douglas M., 85b:86006  
 Hawkins, Douglas M. (with Cressie, Noel) Robust kriging—a proposal. 85b:86006  
 Johnson, Robert E. (with McMeeking, Robert M.) Near-surface flow in glaciers obeying Glen's law. 85b:86007  
 McMeeking, Robert M. See Johnson, Robert E., 85b:86007  
 Molnár, Sándor (with Sidorovskiy, Ferenc) On the Kriging method with nonnegative weights and bounds. (Hungarian. English summary) 85k:86007  
 Pritchett, B. P. Characterization of certain linear integral operators for logging: operators of direct correspondence. (Russian) 85a:86007  
 Shore, John E. Minimum-cross-entropy inversion, spectrum analysis, and classification. Introduction and discussion of possible geophysical applications. 85f:86013  
 Sidorovskiy, Ferenc See Molnár, Sándor, 85k:86007  
 Wolkind, David J. (with Alexander, J. Iwan D.) Erratum: "Kelvin-Helmholtz instability in a layered Newtonian fluid model of the geological phenomenon of rock folding" [SIAM J. Appl. Math. 42 (1982), no. 6, 1276-1295; MR 83j:86004]. 85a:86008

#### secondary classifications (86A60)

- Abutaliev, F. B. (with Akhatov, Yu. K.) ★ Многошаговое вероятностное оценивание при неполной информации и его приложения. (Russian) [Multistep probabilistic estimation with incomplete information and its applications] 85b:62035  
 Akhatov, Yu. K. See Abutaliev, F. B., 85b:62035  
 Dmitriev, V. I. See Tikhonov, A. N.; et al., 85b:00013  
 Gilbert, R. P. (with Jeffrey, Alan) Reverse in situ combustion in oil reservoirs. 85f:86016  
 Glasko, V. B. See Tikhonov, A. N.; et al., 85b:00013  
 Harper, J. F. (with Wake, G. C.) Stokes flow between parallel plates due to a transversely moving end wall. 85a:76046  
 Hutter, Kolumban ★ Theoretical glaciology. 85c:86001  
 Jeffrey, Alan See Gilbert, R. P., 85f:86016  
 Kononenko, G. N. Investigation of convective heat and mass exchange in the filtration of a fluid. (Russian) 85b:76054  
 Salikauskas, K. Some relationships between surface splines and Kriging. 85j:41020  
 Tikhonov, A. N. (with Dmitriev, V. I.; Glasko, V. B.) ★ Математические методы в разведке полезных ископаемых. (Russian) [Mathematical methods in prospecting for useful minerals] 85b:00013  
 Wake, G. C. See Harper, J. F., 85a:76046  
 Watson, G. S. Smoothing and interpolation by Kriging and with splines. 85i:86001  
 Wood, William Wilson Energy intensity of inertial waves in a sphere. 85b:76061

### 86A99 Miscellaneous topics

#### secondary classifications (86A99)

- Ghaffari, R. See Thompson, J. M. T., 85a:58068  
 Gilbert, R. P. (with Jeffrey, Alan) Reverse in situ combustion in oil reservoirs. 85f:86016  
 Jeffrey, Alan See Gilbert, R. P., 85f:86016  
 Thompson, J. M. T. (with Ghaffari, R.) Chaotic dynamics of an impact oscillator. 85a:58068

# 90-XX ECONOMICS, OPERATIONS RESEARCH, PROGRAMMING, GAMES

## 90-00 Handbooks, dictionaries, and other reference works

### secondary classifications (90-00)

- Deo, Narsingh (with Pang, Chi Yin) Shortest-path algorithms: taxonomy and annotation. 85c:90029
- Luna, Henrique Pacca Loureiro A survey on informational decentralization and mathematical programming decomposition. 85c:90023
- Pang, Chi Yin See Deo, Narsingh, 85c:90029
- (von Randow, R.) See Integer programming and related areas, 85c:90060
- Bibliography:
- Integer programming ★ Integer programming and related areas. 85c:90060
- Integer programming and related areas ★ Integer programming and related areas. 85c:90060

## 90-01 Elementary exposition; textbooks

- (Balas, Egon) See Minoux, Michel, 85d:90001a and 85d:90001b
- Clements, David L. ★ An introduction to mathematical models in economic dynamics. 85i:90001
- Davis, Robert P. See Schmidt, J. William, 85i:90001
- Ichihashi, Tatsuro ★ Game theory for economic analysis. 85f:90001
- Lotov, A. V. ★ Введение в экономико-математическое моделирование. (Russian) [Introduction to mathematical economic modeling] 85j:90001
- Minoux, Michel ★ Programmation mathématique: théorie et algorithmes. Tome 1. (French) [Mathematical programming: theory and algorithms. Vol. 1] 85d:90001a
- ★ Programmation mathématique: théorie et algorithmes. Tome 2. (French) [Mathematical programming: theory and algorithms. Vol. 2] 85d:90001b
- (Moiseev, N. N.) See Lotov, A. V., 85j:90001
- Schmidt, J. William (with Davis, Robert P.) ★ Foundations of analysis in operations research. 85i:90001

### secondary classifications (90-01)

- Aubin, Jean-Pierre ★ Explicit methods of optimization. 85f:49001
- (Charles, Anne-Marie) See Aubin, Jean-Pierre, 85f:49001
- Gondran, Michel (with Minoux, Michel) ★ Graphs and algorithms. 85d:90037
- Kapur, J. N. The maximum-entropy principle and its applications to science and engineering. 85m:94018
- Leigh, J. R. ★ Modelling and simulation. 85c:90037
- Minoux, Michel See Gondran, Michel, 85d:90037
- (Nepomniastchy, Pierre) See Aubin, Jean-Pierre, 85f:49001
- (Orde, H. L. S.) See Aubin, Jean-Pierre, 85f:49001
- Schulz, Norbert See Stahl, Konrad, 85e:90002
- Stahl, Konrad (with Schulz, Norbert) ★ Mathematische Optimierung und mikroökonomische Theorie. (German) [Mathematical optimization and microeconomic theory] 85e:90002
- Sydseter, Knut ★ Topics in mathematical analysis for economists. 85e:90006
- Thomas, L. C. ★ Games, theory and applications. 85h:90137
- (Vajda, Steven) See Gondran, Michel, 85d:90037

## 90-02 Advanced exposition (research surveys, monographs, etc.)

- Daniilov, V. I. Models of group choice (a survey). 85c:90001
- Rubinov, A. M. ★ Математические модели расширенного воспроизводства. (Russian) [Mathematical models of expanded production] 85j:90002
- Shelomov, L. A. Survey of estimational results in choice problems. 85c:90002

### secondary classifications (90-02)

- Aoki, Masanao ★ Notes on economic time series analysis: system theoretic perspectives. 85c:90015
- (Boneh, Arnon) See Karwan, Mark H.; et al., 85g:90073
- (Bradley, Gordon H.) See Karwan, Mark H.; et al., 85g:90073
- (Brown, Gerald G.) See Karwan, Mark H.; et al., 85g:90073
- Deák, István (with Hoffer, János; Mayer, János; Németh, Ágoston; Potecz, Béla; Prékopa, András; Stranicky, Beáta) A large scale, mixed-variable mathematical programming model for the short-range optimal schedule of electric power systems with thermal power plants taking network constraints into account. (Hungarian. English summary) 85i:90066
- (Demitakaya, V. N.) See Ekeland, Ivar, 85a:90050
- (Domowitz, Ian) See Pagan, A. R., 85m:62233
- Ekeland, Ivar ★ Элементы математической экономики. (Russian) [Elements of mathematical economics] 85a:90050
- (Engle, Robert F.) See Pagan, A. R., 85m:62233
- Finkel'shtein, Yu. Yu. See Korbut, A. A., 85b:90043
- Francis, Richard L. See Tansel, Barbaros C.; et al., 85h:90045a and 85h:90045b
- (Gal, T.) See Karwan, Mark H.; et al., 85g:90073
- (Godfrey, Leslie) See Pagan, A. R., 85m:62233
- (Graves, Glenn W.) See Karwan, Mark H.; et al., 85g:90073
- Hall, A. D. See Pagan, A. R., 85m:62233
- Hoffer, János See Deák, István; et al., 85i:90066
- (Holm, Sören) See Karwan, Mark H.; et al., 85g:90073
- Karwan, Mark H. (with Lotfi, Vahid; Telgen, Jan; Zionts, Stanley) ★ Redundancy in mathematical programming. 85g:90073
- Khomenyuk, V. V. ★ Элементы теории многоцелевой оптимизации. (Russian) [Elements of the theory of multiobjective optimization] 85i:90133
- Kirichenko, I. O. See Raskin, L. G., 85c:90064
- (Klein, Dieter) See Karwan, Mark H.; et al., 85g:90073

Korbut, A. A. (with Finkel'shtein, Yu. Yu.) Approximate methods of discrete programming. 85b:90043

- (Korbut, A. N.) See Ekeland, Ivar, 85a:90050
- Lotfi, Vahid See Karwan, Mark H.; et al., 85g:90073
- Lowe, Timothy J. See Tansel, Barbaros C.; et al., 85h:90045a and 85h:90045b
- (Lyapunov, A. N.) See Ekeland, Ivar, 85a:90050
- (Makarov, Valerii Leonidovich) See Ekeland, Ivar, 85a:90050
- (Mattheis, Theodore H.) See Karwan, Mark H.; et al., 85g:90073
- Mayer, János See Deák, István; et al., 85i:90066
- Németh, Ágoston See Deák, István; et al., 85i:90066
- Pagan, A. R. (with Hall, A. D.) Diagnostic tests as residual analysis. 85m:62233
- Petrosyan, L. A. New directions in differential game theory. (Russian) 85k:90174
- Potecz, Béla See Deák, István; et al., 85i:90066
- (Pregibon, Daryl) See Pagan, A. R., 85m:62233
- Prékopa, András See Deák, István; et al., 85i:90066
- (Ramsey, James B.) See Pagan, A. R., 85m:62233
- Raskin, L. G. (with Kirichenko, I. O.) ★ Многоиндексные задачи линейного программирования. (Russian) [Multi-index linear programming problems] 85c:90064
- (Rubin, David S.) See Karwan, Mark H.; et al., 85g:90073
- (Sethi, Awanti P.) See Karwan, Mark H.; et al., 85g:90073
- Stranicky, Beáta See Deák, István; et al., 85i:90066
- Tansel, Barbaros C. (with Francis, Richard L.; Lowe, Timothy J.) Location on networks: a survey. I. The p-center and p-median problems. 85h:90045a
- (with Francis, Richard L.; Lowe, Timothy J.) Location on networks: a survey. II. Exploiting tree network structure. 85h:90045b
- Telgen, Jan See Karwan, Mark H.; et al., 85g:90073
- (Thompson, G. L.) See Karwan, Mark H.; et al., 85g:90073
- (Trukhachev, R. L.) See Khomenyuk, V. V., 85i:90133
- (Wallenius, Jyrki) See Karwan, Mark H.; et al., 85g:90073
- Whittle, Peter ★ Optimization over time. Vol. II. 85e:90062
- (Williams, H. P.) See Karwan, Mark H.; et al., 85g:90073
- (Yanovskaya, E. B.) See Ekeland, Ivar, 85a:90050
- Zionts, Stanley See Karwan, Mark H.; et al., 85g:90073

## 90-03 Historical (must also be assigned at least one classification number from Section 01)

- Tikhonov, A. I. Inductive formation of a global target function in fuzzy optimization. (Not in MR)

### secondary classifications (90-03)

- Beckmann, Martin (with Eichhorn, Wolfgang; Krelle, Wilhelm) Rudolf Henn und die mathematischen Systeme in der Ökonomie. [Rudolf Henn and the mathematical systems in economics] 85i:01037
- (with Eichhorn, Wolfgang; Krelle, Wilhelm) Publikationen und Editionen von Rudolf Henn. [Publications and editions by Rudolf Henn] 85i:01028
- Dorfman, Robert The discovery of linear programming. 85e:01034
- Eichhorn, Wolfgang See Beckmann, Martin; et al., 85i:01027 and 85i:01028
- Enomoto, Hikoe The contributions of Robert Endre Tarjan. (Japanese) 85m:01062
- (Henn, Rudolf) See Beckmann, Martin; et al., 85i:01027 and 85i:01028
- Krelle, Wilhelm See Beckmann, Martin; et al., 85i:01027 and 85i:01028
- Orchard-Hays, William History of mathematical programming systems. 85m:01040
- Petrova, L. T. On programming. (Russian) (Not in MR)
- (Tarjan, Robert Endre) See Enomoto, Hikoe, 85m:01062
- Bibliography:
- Henn, Rudolf See Beckmann, Martin; et al., 85i:01028
- Tarjan, Robert Endre See Enomoto, Hikoe, 85m:01062

## 90-04 Explicit machine computation and programs (not the theory of computation or programming)

- Kumar, Santosh Mathematical programming software: a bibliography. (Not in MR)

Bibliography:

Mathematical programming software See Kumar, Santosh, (Not in MR)

### secondary classifications (90-04)

- Gabasov, R. (with Kirillova, F. M.) New algorithms and results of numerical experiments for solution of mathematical programming and optimal control problems. 85i:49048
- Gill, Philip E. (with Murray, Walter; Saunders, Michael A.; Wright, Margaret H.) Trends in nonlinear programming software. 85g:90100
- Hain, Jun Kuan See Norman, Alfred L.; et al., 85a:90072
- Kirillova, F. M. See Gabasov, R., 85i:49048
- Lasdon, Leon S. See Norman, Alfred L.; et al., 85a:90072
- Murray, Walter See Gill, Philip E.; et al., 85g:90100
- Norman, Alfred L. (with Lasdon, Leon S.; Hain, Jun Kuan) A comparison of methods for solving and optimizing a large nonlinear econometric model. 85a:90072
- Saunders, Michael A. See Gill, Philip E.; et al., 85g:90100
- Wright, Margaret H. See Gill, Philip E.; et al., 85g:90100

## 90-06 Proceedings, conferences, etc.

- (Assad, Arjang A.) See Statistics and optimization: the interface, 85h:90005
- (Bamberg, G.) See Risk and capital, 85g:90004
- (Beckmann, Martin) See Operations research and economic theory, 85i:90004
- (Berlyand, E. L.) See Mathematical analysis of models of territorial production systems, 85h:90001
- (Cottle, Richard W.) See Mathematical programming, 85a:90001
- (Eichhorn, Wolfgang) See Contributions to production theory, natural resources, economic indices and related topics, 85e:90001

- (Flacco, Anthony V.) See Sensitivity, stability and parametric analysis, 85h:90004
- (Gaines, B. R.) See Fuzzy sets and decision analysis, 85i:90002
- (Golden, B. L.) See Statistics and optimization: the interface, 85h:90005
- (Hammer, G.) See Selected topics in operations research and mathematical economics, 85h:90003
- (Hauptmann, Harry) See Operations research and economic theory, 85i:90004
- (Henn, Rudolf) See Contributions to production theory, natural resources, economic indices and related topics, 85e:90001
- (Kelmanson, Milton L.) See Mathematical programming, 85a:90001
- (Klein, Lawrence R.) See Quantitative economics and development, 85g:90003
- (Korte, Bernhard) See Mathematical programming, 85a:90001 and Mathematical programming at Oberwolfach, 85i:90003
- (Krelle, Wilhelm) See Operations research and economic theory, 85i:90004
- (Kuznetsov, N. A.) See Problems of control of multiply connected systems, 85d:90004
- (Lagunov, V. N.) See Multistep, differential, noncooperative and cooperative games, 85g:90002
- (Loeffel, Hans) See Symposium: Operations research, 85h:90006a and 85h:90006b
- (Lommatsch, K.) See Conference: Mathematical optimization, 85d:90002 and 85d:90003
- (Meerov, M. V.) See Problems of control of multiply connected systems, 85d:90004
- (Mosler, K. C.) See Operations research and economic theory, 85i:90004
- (Nerlove, M.) See Quantitative economics and development, 85g:90003
- (Pallaschke, Diethard) See Contributions to production theory, natural resources, economic indices and related topics, 85e:90001 and Selected topics in operations research and mathematical economics, 85h:90003
- (Radchenko, V. V.) See Mathematical analysis of models of territorial production systems, 85h:90001
- (Ritter, K.) See Mathematical programming at Oberwolfach, 85i:90003
- (Sergienko, I. V.) See Software for program packages, 85f:90002
- (Slowinski, R.) See Special issue: Meeting of the EURO working group on multicriteria decision aid, 85i:90005
- (Spremann, Klaus) See Risk and capital, 85g:90004
- (Stähly, Paul) See Symposium: Operations research, 85h:90006a and 85h:90006b
- (Szegö, G. P.) See New quantitative techniques for economic analysis, 85h:90002
- (Thoft-Christensen, P.) See System modelling and optimization, 85k:90002
- (Tsang, S. C.) See Quantitative economics and development, 85g:90003
- (Weglars, J.) See Special issue: Meeting of the EURO working group on multicriteria decision aid, 85i:90005
- (Zadeh, Lotfi A.) See Fuzzy sets and decision analysis, 85i:90002
- (Zanakis, Stelios H.) See Statistics and optimization: the interface, 85h:90005
- (Zhukovin, V. E.) See Theoretical cybernetics, 85d:90005
- (Zimmermann, Hans-Jürgen) See Fuzzy sets and decision analysis, 85i:90002
- Conference:**
- Mathematical optimization** ★ 15. Jahrestagung "Mathematische Optimierung". Teil 1. (German) [15th annual conference on mathematical optimization. Part 1] 85d:90002
- Mathematical programming** ★ Mathematical programming at Oberwolfach. II. 85i:90003
- Congress:**
- Mathematical programming** ★ Mathematical programming, 85a:90001
- Contributions to production theory, natural resources, economic indices and related topics** ★ Contributions to production theory, natural resources, economic indices and related topics. 85e:90001
- Copenhagen** ★ System modelling and optimization. 85k:90002
- Fuzzy sets and decision analysis** ★ Fuzzy sets and decision analysis. 85i:90002
- IFIP conference:**
- System modelling and optimization** ★ System modelling and optimization. 85k:90002
- Karlsruhe** ★ Selected topics in operations research and mathematical economics. 85h:90003
- Mathematical analysis of models of territorial production systems** ★ Математический анализ моделей территориально-производственных систем. (Russian) [Mathematical analysis of models of territorial production systems] 85h:90001
- Mathematical programming** ★ Mathematical programming, 85a:90001
- Mathematical programming at Oberwolfach** ★ Mathematical programming at Oberwolfach. II. 85i:90003
- Meeting:**
- EURO, multicriteria decision aid** ★ Special issue on the 18th meeting of the EURO working group on multicriteria decision aid. 85i:90005
- Methods of operations research** ★ Methods of operations research. 47. 85g:90001
- Multistep, differential, noncooperative and cooperative games** ★ Многошаговые, дифференциальные, бескоалиционные и кооперативные игры. (Russian) [Multistep, differential, noncooperative and cooperative games] 85g:90002
- New quantitative techniques for economic analysis** ★ New quantitative techniques for economic analysis. 85h:90002
- Oberwolfach** ★ Mathematical programming at Oberwolfach. II. 85i:90003
- Operations research and economic theory** ★ Operations research and economic theory. 85i:90004
- Poznań, 1983** ★ Special issue on the 18th meeting of the EURO working group on multicriteria decision aid. 85i:90005
- Problems of control of multiply connected systems** ★ Проблемы управления многосвязными системами. (Russian) [Problems of control of multiply connected systems] 85d:90004
- Quantitative economics and development** ★ Quantitative economics and development. 85g:90003
- Rio de Janeiro** ★ Mathematical programming, 85a:90001
- Risk and capital** ★ Risk and capital. 85g:90004
- Selected topics in operations research and mathematical economics** ★ Selected topics in operations research and mathematical economics. 85h:90003

- Sellin** ★ 15. Jahrestagung "Mathematische Optimierung". Teil 1. (German) [15th annual conference on mathematical optimization. Part 1] 85d:90002
- Sensitivity, stability and parametric analysis** ★ Sensitivity, stability and parametric analysis. 85h:90004
- Software for program packages** ★ Математическое обеспечение пакетов программ. (Russian) [Software for program packages] 85f:90002
- Special issue:**
- Meeting of the EURO working group on multicriteria decision aid** ★ Special issue on the 18th meeting of the EURO working group on multicriteria decision aid. 85i:90005
- Statistics and optimization: the interface** ★ Statistics and optimization: the interface. 85h:90005
- St. Gallen** ★ VII. symposium on operations research. Sektionen 1-3. 85h:90006a
- Summer workshop:**
- Risk and capital** ★ Risk and capital. 85g:90004
- Symposium:**
- Operations research** ★ VII. symposium on operations research. Sektionen 1-3. 85h:90006a
- System modelling and optimization** ★ System modelling and optimization. 85k:90002
- Theoretical cybernetics** ★ Теоретическая кибернетика. 2. (Russian) [Theoretical cybernetics. 2] 85d:90005
- Ulm** ★ Risk and capital. 85g:90004

## secondary classifications (90-06)

- (Carlsson, Christer) See Theory and practice of multiple criteria decision making, 85h:90122a
- (Hildenbrand, Werner) See Advances in econometrics, 85d:62003
- (Kochetkov, Yu. A.) See Theory and practice of multiple criteria decision making, 85h:90122a
- (Nikitin, A. I.) See Efficient organization of computations and numerical methods, 85c:65007
- (Pattanaik, Prasanta K.) See Social choice and welfare, 85i:90018
- (Pochs, R. Ya.) See Mathematical methods in economics, 85k:90104
- (Popkov, V. K.) See Methods and programs for solving optimization problems on graphs and networks, 85f:90039 and 85f:90040
- (Salles, Maurice) See Social choice and welfare, 85i:90018
- (Sprogin, A. K.) See Mathematical methods in economics, 85k:90092 and 85k:90104
- (Tsytkin, Ya. Z.) See Control in complex nonlinear systems, 85g:93003
- Advances in econometrics** ★ Advances in econometrics. 85d:62003
- Aix-en-Provence** ★ Advances in econometrics. 85d:62003
- All-union conference:**
- Methods and programs for solving optimization problems on graphs and networks** ★ Методы и программы решения оптимизационных задач на графах и сетях. Часть 1. (Russian) [Methods and programs for solving optimization problems on graphs and networks. Part 1] 85f:90039
- Basic theory of computer science** ★ Basic theory of computer science. 85g:68002
- Caen** ★ Social choice and welfare. 85i:90018
- Congress:**
- Econometric Society** ★ Advances in econometrics. 85d:62003
- Control in complex nonlinear systems** ★ Управление в сложных нелинейных системах. (Russian) [Control in complex nonlinear systems] 85g:93003
- Efficient organization of computations and numerical methods** ★ Эффективная организация вычисления и численные методы. (Russian) [Efficient organization of computations and numerical methods] 85c:65007
- Mathematical methods in economics** ★ Математические методы в экономике. Вып. 19. (Russian) [Mathematical methods in economics. No. 19] 85k:90104
- Methods and programs for solving optimization problems on graphs and networks** ★ Методы и программы решения оптимизационных задач на графах и сетях. Часть 1. (Russian) [Methods and programs for solving optimization problems on graphs and networks. Part 1] 85f:90039
- Moscow** ★ Theory and practice of multiple criteria decision making. 85h:90122a
- Queueing theory and related topics** ★ Queueing theory and related topics. (Japanese) 85h:60003
- Social choice and welfare** ★ Social choice and welfare. 85i:90018
- Symposium:**
- Basic theory of computer science** ★ Basic theory of computer science. 85g:68002
- Collective choice** ★ Social choice and welfare. 85i:90018
- Queueing theory and related topics** ★ Queueing theory and related topics. (Japanese) 85h:60003
- Theory and practice of multiple criteria decision making** ★ Theory and practice of multiple criteria decision making. 85h:90122a
- Ulan Ude** ★ Методы и программы решения оптимизационных задач на графах и сетях. Часть 1. (Russian) [Methods and programs for solving optimization problems on graphs and networks. Part 1] 85f:90039
- Workshop:**
- Multicriteria decision making** ★ Theory and practice of multiple criteria decision making. 85h:90122a

## secondary classifications (90-06)

- Corradi, Corrado On the characterization of smooth distributed lag estimators: a comment. (Italian. English and French summaries) (Not in MR)

## 90Axx Mathematical economics (For econometrics, see 62P20.)

- Chen, Guo Quan (with Lee, Samuel C.; Yu, Eden S. H.) Application of fuzzy set theory to economics. (See 85h:03003)
- (Danil'chenko, A. F.) See Mathematical modeling of processes in economics, 85f:90003
- (Goodwin, R. M.) See Nonlinear models of fluctuating growth, 85g:90005
- (Kabulov, V. K.) See Ziyadullaev, N. S., (Not in MR)



- (Krüger, M.) See *Nonlinear models of fluctuating growth*, 85g:90005
- Lee, Samuel C. See *Chen, Guo Quan; et al.*, (85h:03003)
- Lombardini, Silro Economics: past and future. (See 85h:90002)
- Schulz, Norbert See *Stahl, Konrad*, 85e:90002
- (Semyshayev, Anstol) See *Proceedings: IIASA task force meeting on input-output modeling*, 85g:90006
- Stahl, Konrad (with Schulz, Norbert) ★ *Mathematische Optimierung und mikroökonomische Theorie*. (German) [Mathematical optimization and microeconomic theory] 85e:90002
- Szegö, G. P. Mathematical methods for economic analysis: a biased review. (See 85h:90002)
- (Vercelli, Alessandro) See *Nonlinear models of fluctuating growth*, 85g:90005
- Yu, Eden S. H. See *Chen, Guo Quan; et al.*, (85h:03003)
- Ziyadullayev, N. S. ★ *Математические методы в системах управления региональной экономикой*. (Russian) [Mathematical methods in systems for control of regional economics] (Not in MR)
- Lazearburg ★ *Proceedings of the fourth IIASA task force meeting on input-output modeling*, 85g:90006
- Mathematical modeling of processes in economics ★ *Mathematical modeling of processes in economics*. (Russian) 85f:90003
- Meeting:  
 IIASA, input-output modeling ★ *Proceedings of the fourth IIASA task force meeting on input-output modeling*, 85g:90006
- Nonlinear models of fluctuating growth ★ *Nonlinear models of fluctuating growth*, 85g:90005
- Proceedings:  
 IIASA task force meeting on input-output modeling ★ *Proceedings of the fourth IIASA task force meeting on input-output modeling*, 85g:90006
- Selma ★ *Nonlinear models of fluctuating growth*, 85g:90005
- Symposium:  
 Nonlinear models of fluctuating growth ★ *Nonlinear models of fluctuating growth*, 85g:90005
- secondary classifications (90Axx)
- Ichihashi, Tatsuro ★ *Game theory for economic analysis*, 85f:90001
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- Yang, Z. J. See Ho, Yu Chi; et al., (Not in MR)
- Yatsenko, Yu. P. See Ivanov, Viktor Vladimirovich; et al., **85i:90026**
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- Kesel'man, V. O. The statistical approach to the solution of a class of transportation problems with fuzzy constraints. (Russian. English summary) **85g:90077**
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- Cugno, F. (with Montrucchio, L.) Stability and instability in a two-dimensional dynamical system: a mathematical approach to Kaldor's theory of the trade cycle. **85k:90050**
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- Day, Richard H. The emergence of chaos from classical economic growth. **85a:90061**
- Dechert, W. Davis Does optimal growth preclude chaos? A theorem on monotonicity. **85j:90012**
- Dement'ev, N. P. Behavior of optimal trajectories in models with slightly changing technology. (Russian) **85k:90051**
- Easley, David See Blume, Lawrence E., **85j:90011**
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- Feichtinger, Gustav Saddle point analysis in a price-advertising model. **85d:90027**
- Fisher, Franklin M. ★ Disequilibrium foundations of equilibrium economics. **85m:90008**
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- Galiev, U. E. See Ivanov, Viktor Vladimirovich; et al., **85d:90028**
- Gómez M., G. L. Modelling the economic development by means of impulsive control techniques. (See **85g:93006**)
- Gupta, Manish Ranjan Migration, unemployment and development. A dynamic two-sector analysis. (Not in MR)
- Hartl, R. Optimal dynamic advertising policies for hereditary processes. **85h:90042**
- Ivanov, Viktor Vladimirovich (with Yatsenko, V. M.; Yatsenko, Yu. P.) Study of the continuity with respect to parameters of the integral dynamic models of V. M. Glushkov. (Russian) **85k:90052**
- (with Yatsenko, Yu. P.; Galiev, U. E.) Analytic investigation of V. M. Glushkov's dynamic macroeconomic model with different dynamics of renovation of technologies. II. (Russian. Kazakh summary) **85d:90028**
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- Jörnsten, Kurt O. (with Sandblom, C. L.) A nonlinear econometric model with bounded controls and an entropy objective. **85k:90053**
- Kalman, R. E. Dynamic econometric models: a system-theoretic critique. (See **85h:90002**)
- Kosarev, Yu. G. A mathematical model of harmonic systems. (Russian) (Not in MR)
- Kunstman, A. Controlling a linear dynamic system according to asymmetric preferences. **85k:90054**
- Kurbanova, G. V. See Alsagaleev, S. A.; et al., **85a:90060**
- Laitner, John Transition time paths for overlapping-generations models. (Not in MR)
- Leban, Raymond (with Lesourne, Jacques) Adaptive strategies of the firm through a business cycle. (Not in MR)
- Lesourne, Jacques See Leban, Raymond, (Not in MR)
- Li, Ming Shi (with Cai, Jing Qiu) A mathematical model and computation for accumulation rate optimization. (Chinese. English summary) **85k:90055**
- Lucertini, Mario Bounded rationality in long-term planning: a linear programming approach. (Not in MR)
- Magill, Michael J. P. An equilibrium model of risk and investment. **85c:90024**
- Makhmudov, E. N. Abstract models of economic dynamics describable by convex discrete inclusions with aftereffect. (Russian. English and Azerbaijani summaries) **85a:90062**
- Matveenko, V. D. Efficient trajectories in a discrete one-product model with disaggregated funds. (Russian) **85i:90041**
- Medio, A. Synergetics and dynamic economic models. (See **85g:90003**)
- Medvedev, Pëter A general existence theorem for von Neumann economic growth models. **85f:90028**
- Mitsui, Toshihide A simple stochastic adjustment process. **85i:90043**
- Montrucchio, L. See Cugno, F., **85k:90049** and **85k:90050**
- Nishimura, Kiyohiko G. A new concept of stability and dynamical economic systems. **85i:90043**
- Ollero, A. (with Aracil, Javier; Camacho, E. F.) Optimization of dynamic regional models: an interactive multiobjective approach. (Not in MR)
- Pak, O. I. Quasirates of growth and  $\epsilon, \delta$  equilibrium states in the von Neumann-Gale model of economic dynamics. (Russian) **85i:90044**
- Limit behavior of different classes of trajectories in von Neumann-Gale models. (Russian) **85k:90056**
- Petrosyan, L. A. (with Zakharov, V. V.) Dynamic game-theoretic model of regional development. (Russian) **85m:90009**
- Pohjola, Matti Nash and Stackelberg solutions in a differential game model of capitalism. **85a:90063**
- Rosser, J. Barkley, Jr. Reswitching as a cusp catastrophe. **85a:90064**
- Rubinov, A. M. An approach to the study of macromodels of economic dynamics. (Russian) (Not in MR)
- Samuel, Judith A stochastic model of economic growth with Markovian dependence. (French and Russian summaries) **85b:90019**
- Sandblom, C. L. See Jörnsten, Kurt O., **85k:90053**
- Schwarz, Konibert Zur ökonomischen Interpretation von Euler-Lagrange-Differentialgleichungen. (Russian summary) [On the economic interpretation of Euler-Lagrange differential equations] (Not in MR)
- Selertstad, Atle (with Sydsæter, Knut) Sufficient conditions applied to an optimal control problem of resource management. **85d:90029**

- Silverberg, Gerald Embodied technical progress in a dynamic economic model: the self-organisation paradigm. (See 85g:90006)
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- Weibull, Jörgen W. A dynamic model of trade frictions and disequilibrium in the housing market. (Hungarian. English and Russian summaries) 85f:90029
- von Weizsäcker, C. Christian The costs of substitution. (Not in MR)
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- Zhantleuova, R. Sh. An optimization model of a fuel-power complex in a nonlinear dynamic multisectoral macromodel of economic development. (Russian) (Not in MR)
- secondary classifications (90A16)
- Albin, Peter S. Structural theory and structural formations. 85k:90072
- Balder, E. J. An existence result for optimal economic growth problems. 85e:49002
- Baxley, John V. (with Moorhouse, John C.) Lagrange multiplier problems in economics. 85k:90020
- Becker, Robert A. A simple dynamic equilibrium model with adjustment costs. 85a:90049
- Benhabib, Jess (with Nishimura, Kazuo) Cyclical input demands and the adjustment cost theory of the firm. (See 85g:90005)
- Berck, Peter (with Perloff, Jeffrey M.) An open-access fishery with rational expectations. 85h:90029
- Bhattacharya, Rabi Nath (with Majumdar, M. K.) On global stability of some stochastic economic processes: a synthesis. 85g:93057
- Clements, David L. ★An introduction to mathematical models in economic dynamics. 85i:90001
- Drèze, Jacques H. (with Sheshinski, Eytan) On industry equilibrium under uncertainty. 85d:90018
- Epstein, Larry G. Stationary cardinal utility and optimal growth under uncertainty. 85f:90020
- Feinstein, C. D. (with Oren, S. S.) Local stability properties of the modified Hamiltonian dynamic system. 85a:49046
- (with Oren, S. S.) A Newton-type algorithm for the solution of the implicit programming problem. 85k:49077
- Ford, Joseph Ergodicity for economists. (See 85h:90002)
- Gabale, Günter Nonlinear models of business cycle theory. 85i:90031
- Hämäläinen, R. P. (with Kaitala, V.; Haurie, A.) Bargaining on whales: a differential game model with Pareto optimal equilibria. 85d:90135
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- Honkapohja, Seppo (with Ito, Takatoshi) Stability with regime switching. 85h:90034
- Ikeda, Masao (with Šiljak, D. D.; White, David E.) An inclusion principle for dynamic systems. 85j:93063
- Ito, Takatoshi See Honkapohja, Seppo, 85h:90034
- Jordan, J. S. Locally stable price mechanisms. 85e:90014
- Kaitala, V. See Hämäläinen, R. P.; et al., 85d:90135
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- Sheshinski, Eytan See Drèze, Jacques H., 85d:90018
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- Donaldson, John B. A note on value maximization for consumption sets in  $l^1$ . 85d:90030
- Fukuchi, Takao Growth and stability of multiregional economy. 85a:90068
- Gerasimov, Yu. K. A qualitative investigation of a dynamic balanced growth model. (Not in MR)
- Grigor'ev, V. V. ★Алгоритмы решения одной задачи определения оптимальной совокупности многоотраслевых комплексов. (Russian) [Algorithms for solving a problem of determining the optimal aggregate of multibranch complexes] (Not in MR)
- See also Khachaturov, V. R.; et al., (Not in MR)
- Hua, Luo Geng Mathematical theory of optimization in macroeconomic planning. II. Consumption coefficients. III. A mathematical proof for the positive eigenvector method. (Chinese) (Not in MR)
- Mathematical theory of optimization in macroeconomic planning. I. Total production and consumption matrix coefficients. (Chinese) (Not in MR)
- Mathematical theory of optimization in macroeconomic planning. IV. Mathematical model (utilizing the theory of contradictions). V. Discussion of adjustments. VI. Upper bounds on productive capacity; tables. (Chinese) (Not in MR)
- Khachaturov, V. R. (with Astakhov, N. D.; Grigor'ev, V. V.) ★Алгоритмы определения оптимальной совокупности отраслевых вариантов размещения предприятий с учетом эффекта агломерации. (Russian) [Algorithms for determining the optimal aggregate of branch variants of location of enterprises allowing for the effect of agglomeration] (Not in MR)
- See also Zlotov, A. V., (Not in MR)
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- Umnov, Alexander Modeling dynamic systems of variable structure. (See 85k:90002)
- Wang, Hui Jiong See Wang, Yan Zhang, (Not in MR)
- Wang, Yan Zhang (with Wang, Hui Jiong) A method of optimization for macroeconomic planning. (Chinese) (Not in MR)
- Zlotov, A. V. (with Khachaturov, V. R.) ★Решение задачи оптимального размещения предприятий двух отраслей с учетом эффекта агломерации. (Russian) [Solution of the problem of optimal location of enterprises of two branches, allowing for the effect of agglomeration] (Not in MR)
- secondary classifications (90A17)
- Aracil, Javier Qualitative methods in social systems modelling. (See 85g:93006)
- See also Ollero, A.; et al., (Not in MR)
- Buiter, Willem H. Saddlepoint problems in continuous time rational expectations models: a general method and some macroeconomic examples. 85b:90018
- Camacho, E. F. See Ollero, A.; et al., (Not in MR)
- Gupta, Manash Ranjan Migration, unemployment and development. A dynamic two-sector analysis. (Not in MR)
- Lotov, A. V. ★Введение в экономико-математическое моделирование. (Russian) [Introduction to mathematical economic modeling] 85j:90001
- Mednitakii, V. G. ★Оптимизация перспективного планирования. (Russian) [Optimization of long-term planning] 85k:90030
- (Moiseev, N. N.) See Lotov, A. V., 85j:90001
- Ollero, A. (with Aracil, Javier; Camacho, E. F.) Optimization of dynamic regional models: an interactive multiobjective approach. (Not in MR)
- Oshime, Yorimasa An extension of Morishima's nonlinear Perron-Frobenius theorem. 85k:65045
- Vohra, Rajiv Local public goods and average cost pricing. 85k:90034
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- 90A19 Statistical models
- Böhm, Bernhard Demand systems based on intertemporal consumer decisions—their usefulness for input-output modeling. (See 85g:90006)
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- Hain, Jun Kuan See Norman, Alfred L.; et al., 85a:90072
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- Uebe, G. Computational problems in economics. (See 85i:90004)
- Yastremakii, A. I. ★Стохастические модели математической экономики. (Russian) [Stochastic models of mathematical economics] 85g:90038



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- Dielman, Terry E. (with Pfaffenberger, Roger) Computational algorithms for calculating least absolute value and Chebyshev estimates for multiple regression. (See 85h:90005)
- Gehrig, Wilhelm On a characterization of the Shannon concentration measure. 85c:94010
- Joosten, Geert On the interpretation and identification of simultaneous-equation models. 85k:90059
- Lady, George M. The structure of qualitatively determinate relationships. 85c:90019
- Lee, Lung Fei Tests for the bivariate normal distribution in econometric models with selectivity. 85k:62230
- McFadden, Daniel Qualitative response models. (See 85d:62003)
- Pagan, A. R. Econometric issues in the analysis of regressions with generated regressors. 85m:62234
- Pfaffenberger, Roger See Dielman, Terry E., (85h:90005)
- Rossi, Peter E. See Zellner, Arnold, 85f:62139
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- Sargan, J. D. Identification in models with autoregressive errors. 85g:62184
- Waldman, Donald M. Properties of technical efficiency estimators in the stochastic frontier model. 85k:62236
- Zellner, Arnold (with Rossi, Peter E.) Bayesian analysis of dichotomous quantal response models. 85f:62139

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- Abolontsev, Yu. I. (with Kil'dishev, G. S.) Statistical adequacy of regression models and the problem of collinearity. (Russian) (Not in MR)
- Aoki, Masanao ★ Notes on economic time series analysis: system theoretic perspectives. 85c:90015
- Corradi, Corrado Optimal control of econometric models: some experimental results for the Italian monetary sector. (See 85h:90002)
- Hartley, Michael J. Neoclassical econometrics: the agenda. 85i:90045
- Hendry, David F. Time-series econometrics. 85k:90058
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- Nijman, Th. E. See Palm, F. C., 85m:90010
- Palm, F. C. (with Nijman, Th. E.) Missing observations in the dynamic regression model. 85m:90010
- Stoker, Thomas M. Completeness, distribution restrictions, and the form of aggregate functions. (Not in MR)
- Tian, Guo Qiang Studies on the identification problem of the simultaneous economic models from the viewpoint of unique determination of parameters. I. (Chinese summary) (Not in MR)
- Studies on the identification problem of the simultaneous economic models from the viewpoint of unique determination of parameters. II. (Chinese summary) (Not in MR)

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- Bell, William R. An introduction to forecasting with time series models. 85m:62203
- Bhargava, Alok See Sargan, J. D., 85c:62172
- Bordignon, Silvano (with Masarotto, Guido) A class of nonstationary models. (Italian. English and French summaries) 85g:62152
- (Fang, Zhao Ben) See Newbold, P., 85a:62142
- Geraci, Vincent J. Errors in variables and the individual structural equation. 85a:62177
- Havener, Arthur M. Quadratic open-loop optimal control of economic systems. 85c:93055
- Kalman, R. E. Identifiability and modeling in econometrics. 85b:62099
- Klein, Lawrence R. (with Su, Vincent) Recent economic fluctuations and stabilization policies: an optimal control approach. (See 85g:90003)
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- Iéndárd, Margit Approximation and short time prediction of economic time series by spline functions. 85h:65030
- Mäkeläinen, Timo See Nyblom, Jukka, 85g:62117
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## 90A30 Applications to problems of human society (air pollution, etc.)

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- Bogobowicz, A. (with Sokolowski, J.) Modelling and control of water quality in a river section. (See 85k:90002)
- Davidson, Russell See Arnott, Richard; et al., 85a:90073
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- Lasslo, Ervin Cybernetics and global planning. (See 85k:93002)
- Linstone, Harold A. Cybernetics and the future. (See 85k:93002)
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- Brauer, Fred Constant yield harvesting of population systems. (See 85g:92001)
- Hinderer, K. (with Kadelka, D.) On an optimal harvesting problem. (German summary) 85f:90066
- Kadelka, D. See Hinderer, K., 85f:90066
- Wang, Ar Young Study of commercial fishery economics: a survey and general comment on rational models. (Not in MR)
- White, George N., III The legacy of Beverton and Holt. (See 85g:92001)
- Woodward, Mark The limiting properties of population distributions with particular application to manpower planning. 85d:60133
- Zhafyarov, A. Zh. Rates of growth of models of population movement. (Russian) 85h:92059
- 90A99 None of the above, but in this section
- Braeutigam, Ronald R. (with Quirk, James P.) Demand uncertainty and the regulated firm. (Not in MR)
- Foster, James E. An axiomatic characterization of the Theil measure of income inequality. 85a:90074
- Kose, John (with Majthay, Antal) Structural stability of market models. 85i:90046
- Majthay, Antal See Kose, John, 85i:90046
- Quirk, James P. See Braeutigam, Ronald R., (Not in MR)
- Zuckerman, Dror On preserving the reservation wage property in a continuous job search model. 85j:90013

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- Albrycht, Jerzy (with Matloka, Marian) On fuzzy multivalued functions. I. Introduction and general properties. 85a:03063
- Matloka, Marian See Albrycht, Jerzy, 85a:03063
- Ord, J. Keith (with Patil, G. P.; Tallie, C.) Truncated distributions and measures of income inequality. 85m:62033
- Patil, G. P. See Ord, J. Keith; et al., 85m:62033
- Tallie, C. See Ord, J. Keith; et al., 85m:62033

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- Conway, D. A. OR is what OR does. (See 85k:90002)
- Feichtinger, Gustav (with Jørgensen, Steffen) Differential game models in management science. 85a:90075
- (Grauer, M.) See Interactive decision analysis, 85i:90047
- Jørgensen, Steffen See Feichtinger, Gustav, 85a:90075
- Luna, Henrique Pacca Loureiro A survey on informational decentralization and mathematical programming decomposition. 85c:90025
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- Schmidt, J. William (with Davis, Robert P.) ★ Foundations of analysis in operations research. 85i:90001
- Computer and job-shop scheduling theory ★ Теория расписания и вычислительные машины. (Russian) [Scheduling theory and computers] 85h:68003
- Scheduling theory and computers ★ Теория расписания и вычислительные машины. (Russian) [Scheduling theory and computers] 85h:68003

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- Ahn, Byung H. See Park, Kyung S., 85k:90066
- Albach, Horst Investment in inventory. (See 85i:90004)
- Anand, K. See Chaudhuri, A. K., 85d:90032
- Arivarignan, G. See Kalpakam, S., 85i:90049
- Astakhov, N. D. On the dynamical problem of positioning factories with warehouses of production inventory. 85g:90039
- Asoury, Katy S. (with Miller, Bruce L.) A comparison of the optimal ordering levels of Bayesian and non-Bayesian inventory models. (Not in MR)
- Bauer, W. (with Gfrer, H.; Wacker, Hansjörg) Optimization strategies for hydro energy storage plants. (Not in MR)
- Beasley, J. E. An algorithm for the two-dimensional assortment problem. (Not in MR)
- Bensoussan, Alain (with Proth, Jean-Marie) Inventory planning in a deterministic environment: concave cost set-up. 85f:90030
- Boland, Philip J. (with Prochan, Frank) Optimal arrangement of systems. 85i:90048
- Bol'shakov, V. A. Locally optimal algorithms for group supply control. (Russian. English and Polish summaries) 85k:90060
- Brujls, P. A. On the quality of heuristic solutions to a  $19 \times 19$  quadratic assignment problem. (Not in MR)
- Burkard, Rainer E. Quadratic assignment problems. (Not in MR)
- Burstein, Michael C. (with Nevison, Christopher H.; Carlson, Robert C.) Dynamic lot-sizing when demand timing is uncertain. 85c:90016

- Carlson, Robert C. See Burstein, Michael C.; et al., 85g:90016
- Chaudhuri, A. K. (with Anand, K.) Multistage integrated-production inventory systems with service time. 85d:90033
- Chen, Rueven Solution of location problems with radial cost functions. 85a:90076
- Cho, D. Chinyung (with Johnson, E. L.; Padberg, Manfred W.; Rao, M. R.) On the uncapacitated plant location problem. I. Valid inequalities and facets. 85j:90015a (with Padberg, Manfred W.; Rao, M. R.) On the uncapacitated plant location problem. II. Facets and lifting theorems. 85j:90015b
- Cossens, Margaret B. (with Wang, Ding-I) The general channel assignment problem. 85h:90043
- Das, Chandrasekhar Inventory control for lognormal demand. 85g:90040
- Q, r inventory models with time-weighted backorders. 85a:90077
- Daushvili, N. M. See Khutsishvili, N. G., (85d:90005)
- Dave, D. S. A production-planning problem: optimisation under order-level lot-size system inventory model. (Not in MR)
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- Welch, J. S.** See Tomlin, J. A., 85k:90102
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- Williams, H. P.** Restricted vertex generation applied as a crashing procedure for linear programming. (Not in MR)
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- Abdelmalek, N. N.** Linear one-sided approximation algorithms for the solution of overdetermined systems of linear inequalities. 85b:65051
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- Eaves, B. Curtis (with Lemke, C. E.) On the equivalence of the linear complementarity problem and a system of piecewise linear equations. II. **85j:90063**
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- Kunchev, O. I. Dual method of solution of a terminal control problem. (Russian. English summary) **85a:49042**
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- Samet, Dov (with Zemel, Eitan) On the core and dual set of linear programming games. **85g:90132**
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- Tuniev, A. D. The directional vector method and its applications. (Russian. Armenian summary) **85g:45046**
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- Minoux, Michel Subgradient optimization and Benders decomposition for large scale programming. **85c:90074**
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- Ehrlich, G. See Intrator, J., (Not in MR) and (Not in MR)
- Einhub, J. M. A finite method for the solution of a multiresource allocation problem with concave return functions. **85h:90062**
- Emelichev, V. A. (with Kravtsov, M. K.) Transport polytopes. (Russian) **85j:90028**
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- Evans, James R. The factored transportation problem. **85i:90088**
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- Gustafson, S.-Å. (with Kortanek, K. O.) Semi-infinite programming and applications. **85i:90069**

- Ilichev, A. P. (with Shevchenko, V. N.) Extreme points of polyhedra of multi-index transportation problems. (Russian) **85j:90029**
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- (with Ehrlich, G.) Tree modification in the transportation problem: a new method. (Not in MR)
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- Zemel, Eitan An  $O(n)$  algorithm for the linear multiple choice knapsack problem and related problems. **85h:90083**
- Zhao, Feng Zhi The potential method for solving the multicommodity capacity transportation problem. (Chinese. English summary) **85g:90080**

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- Bakhshi, H. C. See Khanna, Saroj; et al., **85a:90095**
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- Clark, D. I. (with Osborne, M. R.) A descent algorithm for minimizing polyhedral convex functions. **85c:90070**
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- Elster, K.-H. (with Harant, J.; Hutschenreuther, H.) Eine Zerlegungsmethode zur Entfernungsberechnung auf Verkehrsnetzen. (English and Russian summaries) [A splitting method for computing distances in traffic networks] (See **85d:90002**)
- Emelichev, V. A. (with Kravtsov, M. K.) Combinatorial theory of transportation polyhedra. (German and Russian summaries) **85b:52007**
- Gam, Saul I. (with Dror, Moshe) An interactive approach to multiple-objective linear programming involving key decision variables. **85d:90104**
- Gupta, Bina (with Gupta, Reeta) Multicriteria simplex method for a linear multiple-objective transportation problem. **85a:90207**
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- Khanna, Saroj (with Bakhshi, H. C.; Arora, S. R.) Time minimization transportation problem with restricted flow. **85a:90095**
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- Martinec, Ivan (with Strnadová, Vlasta) An exact algorithm for a class of fixed-cost transportation problems. (Czech summary) **85a:90082**
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- Antamoshkin, A. N. (with Nazarov, A. A.) Conflict optimization of initial steps of the operation of an applied optimization program package. (Russian) (See 85g:90125)  
On the optimal algorithms for the optimization of functionals with Boolean values. (Russian) (See 85i:90018a)
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- Akhmedov, F. B. Examination of vertices of a polytope of constraints in the binary programming problem. (Russian. English and Azerbaijani summaries) 85a:90162
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- Stefănescu, Maria-Viorica See Stănescu, Anton, (85i:90018b)
- Stob, Michael A supplement to: "A mathematician's guide to popular sports" [Amer. Math. Monthly 90 (1983), no. 4, 246-266; MR 85i:05122a] by T. Jech. 85i:05122b
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- From dots and boxes to maps and regions, and beyond. 85a:05076
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- Yajima, Yukinobu Topological games and products. II. 85c:54008
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- Cressman, R. (with Hines, W. G. S.) Letter to the editor: "Three characterizations of population strategy stability" [J. Appl. Probab. 17 (1980), no. 2, 333-340; MR 81f:90146] by Hines. 85a:90255
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- Cheng, Leonard (with Hart, David) The local stability of an open-loop Nash equilibrium in a finite horizon differential game. 85d:90132

- Chichilnisky, G. Social choice and game theory: recent results with a topological approach. (See 85i:90018)
- Eshel, Ilan (with Akin, E.) Coevolutionary instability and mixed Nash solutions. 85d:92023
- Gardner, Roy  $\lambda$ -transfer value and fixed-price equilibrium in two-sided markets. (See 85i:90018)
- Haas, Hansjörg Conflict, cooperation and social preference functions. (See 85a:90010)
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- Amihäsel, C. (with Minut, P.) On a stochastic process with discrete time and imposed length of time. (Not in MR)
- Minut, P. See Amihäsel, C., (Not in MR)

### 92-01 Elementary exposition; textbooks

- (Beknasarov, Artavas) See Vol'kenshtein, M. V., 85c:92001
- Chernavskii, D. S. See Romanovskii, Yu. M.; et al., 85k:92002
- Jing, Zhu Jun Biomathematics. I. Mathematics and ecology. (Chinese) 85k:92001a
- Biomathematics. II. Mathematics and biomedicine. (Chinese) 85k:92001b
- Romanovskii, Yu. M. (with Stepanova, N. V.; Chernavskii, D. S.) ★Математическая биофизика. (Russian) [Mathematical biophysics] 85k:92002
- Stepanova, N. V. See Romanovskii, Yu. M.; et al., 85k:92002
- Vol'kenshtein, M. V. ★Biophysics. 85c:92001

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- Arrowsmith, D. K. (with Place, C. M.) ★Ordinary differential equations. 85a:34001
- Huckfeldt, R. Robert (with Kohfeld, C. W.; Likens, Thomas W.) ★Dynamic modeling. 85a:92039
- Kapur, J. N. Mathematical models in medical sciences. 85k:92014
- Kohfeld, C. W. See Huckfeldt, R. Robert; et al., 85a:92039
- Likens, Thomas W. See Huckfeldt, R. Robert; et al., 85a:92039
- Place, C. M. See Arrowsmith, D. K., 85a:34001
- Stockhausen, Manfred ★Mathematische Behandlung naturwissenschaftlicher Probleme. Teil 1. (German) [Mathematical treatment of problems in natural science. Part 1] (Not in MR)

### 92-02 Advanced exposition (research surveys, monographs, etc.)

- Conrad, Michael ★Adaptability. 85m:92001
- Howard, Louis N. Chemical oscillations. 85j:92001
- Karlin, Samuel Mathematical models, problems, and controversies of evolutionary theory. 85k:92003
- Lyubich, Yu. I. ★Математические структуры в популяционной генетике. (Russian) [Mathematical structures in population genetics] 85i:92001

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- Nusse, H. E. Complicated dynamical behaviour in discrete population models. 85d:92028

### 92-03 Historical (must also be assigned at least one classification number from Section 01)

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- Bukhahtaber, V. M. (with Gindikin, S. G.) From Cavalieri's principle to the tomograph. (Bulgarian) 85e:01032
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- Gindikin, S. G. See Bukhahtaber, V. M., 85e:01032
- Gribov, L. A. (with Kaplan, I. G.) Mathematical methods in chemistry. (Russian) (See 85g:01004)

- (Hughes, D. E.) See Jordan, D. W., (Not in MR)
- Johannsen, Wilhelm See Roll-Hansen, Nils, (Not in MR)
- Jordan, D. W. D. E. Hughes. Self-induction and the skin-effect. (Not in MR)
- Kaplan, I. G. See Gribov, L. A., 85g:01004
- (Penkov, I.) See Bukhahtaber, V. M., 85e:01032
- Roll-Hansen, Nils (with Johannsen, Wilhelm) The genotype theory of Wilhelm Johannsen and its relation to plant breeding and the study of evolution. (Not in MR)

### 92-04 Explicit machine computation and programs (not the theory of computation or programming)

- Oden, Neal L. (with Shao, Kwang Tsao) An algorithm to equiprobably generate all directed trees with  $k$  labeled terminal nodes and unlabeled interior nodes. 85e:92001
- Shao, Kwang Tsao See Oden, Neal L., 85e:92001

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- (Enns, R. H.) See Nonlinear phenomena in physics and biology, 85g:92003
- (Hallam, Thomas G.) See Mathematical ecology, 85g:92001
- (Jones, Billy L.) See Nonlinear phenomena in physics and biology, 85g:92003
- (Levin, S. A.) See Population biology, 85a:92001 and Mathematical ecology, 85g:92001
- (Mitropolskii, Yu. A.) See Mathematical methods in biology, 85g:92002
- (Miura, Robert M.) See Nonlinear phenomena in physics and biology, 85g:92003
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- (Reichl, L. E.) See Instabilities, bifurcations, and fluctuations in chemical systems, 85j:92002
- (Schieve, W. C.) See Instabilities, bifurcations, and fluctuations in chemical systems, 85j:92002

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- Mathematical methods in biology ★Математические методы в биологии. (Russian) [Mathematical methods in biology] 85g:92002
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- (Bithell, J. F.) See Perspectives in medical statistics, 85g:92005
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- Morphogenesis, from biology to mathematics ★La morphogenèse, de la biologie aux mathématiques. (French) [Morphogenesis, from biology to mathematics] 85h:92005

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Waterman, Michael S. Efficient sequence alignment algorithms. 85h:92022

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Belintsev, B. N. The spatial form self-organization in the development of *Dictyostelium discoideum*. 85h:92002

Berding, C. (with Harbich, T.; Haken, Hermann) A pre-pattern formation mechanism for the spiral-type patterns of the sunflower head. 85d:92001

Bielada, Henryk Choice and methods for determining the parameters of tree structures generated by evolutive systems. (Polish. English and Russian summaries) 85j:92003 (Bouligand, Yves) See Morphogenesis, from biology to mathematics, 85h:92005

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Falsh, Daniel P. Patterns of sensitivity of association measures in numerical taxonomy. (Not in MR)

Feldman, Jerome A. Massively parallel computational models of biological systems. (See 85g:92006)

Feldman, Richard M. (with Curry, Guy L.) A pde formulation and numerical solution for a boll weevil-cotton crop model. 85b:92001

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Jean, Roger V. Mathematical modeling in phylotaxis: the state of the art. 85a:92004

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Partridge, Derek (with Lopez, Patricia D.; Johnston, Victor S.) Computer programs as theories in biology. 85g:92004

Perelló, Carlos A problem for mathematics: how a medium loses its uniformity. (Catalan) (See 85h:00011b)

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an der Heiden, Uwe Periodic, aperiodic, and stochastic behavior of differential-difference equations modeling biological and economical processes. 85m:34113

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- Perelló, Carlos Metabolism and evolution. The mathematical language of catastrophe theory. (Catalan) (Not in MR)
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- Romanovskii, Yu. M. (with Stepanova, N. V.; Chernavskii, D. S.) ★ Математическая биофизика. (Russian) [Mathematical biophysics] 85k:92002
- Rubin, A. B. ★ Термодинамика биологических процессов. (Russian) [The thermodynamics of biological processes] 85k:80001
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- Dionova-Jerman-Blažić, B. See Randić, M.; et al., 85h:92065
- Feng, Xing Hong (with Yang, Zhong Zhi; Tang, Ao Qing) Problem on spectra of conjugate molecules having repeated units. 85g:92022
- Gutman, I. Note on algebraic structure count. 85h:92062
- Harris, D. K. See Roy, A. B.; et al., (85g:93006) and Magnuson, V. R.; et al., (85g:92023)
- Hass, E.-C. (with Plath, P. J.) The multidimensional  $\lambda$ -model—a graph theoretical/algebraic approach to describe mechanistic aspects of complex chemical reactions. (See 85g:92023)
- See also Plath, P. J., (85g:92023)
- Herndon, William C. Canonical labelling and linear notation for chemical graphs. 85h:92063
- Jashari, G. See Baryss, M.; et al., (85g:92023)
- King, R. Bruce Topological aspects of oscillating chemical reactions. 85m:92017
- The flow topology of chemical reaction networks. 85c:92048
- See also Chemical applications of topology and graph theory, 85g:92023
- Kraus, G. A. See Randić, M.; et al., 85h:92065
- Lall, R. S. See Baryss, M.; et al., (85g:92023)
- Magnuson, V. R. (with Harris, D. K.; Basak, S. C.) Topological indices based on neighborhood symmetry: chemical and biological applications. (See 85g:92023)
- See also Roy, A. B.; et al., (85g:93006)
- Othmer, H. G. The global dynamics of a class of reaction networks. 85h:92064
- Peusner, L. Electrical network representation of  $n$ -dimensional chemical manifolds. 85m:92018
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- See also Hass, E.-C., (85g:92023)
- Randić, M. (with Kraus, G. A.; Dionova-Jerman-Blažić, B.) Ordering of graphs as an approach to structure-activity studies. 85h:92065
- Rouvray, D. H. Should we have designs on topological indices? 85h:92066
- Roy, A. B. (with Basak, S. C.; Harris, D. K.; Magnuson, V. R.) Neighborhood complexities and symmetry of chemical graphs and their biological applications. (See 85g:93006)
- Sellers, Peter H. The classification of chemical mechanisms from a geometric viewpoint. (See 85g:92023)
- Srivastava, V. K. See Baryss, M.; et al., (85g:92023)
- Tang, Ao Qing See Feng, Xing Hong; et al., 85g:92022
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- Yang, Zhong Zhi See Feng, Xing Hong; et al., 85g:92022
- Athens, Ga. ★Chemical applications of topology and graph theory. 85g:92023
- Chemical applications of topology and graph theory ★Chemical applications of topology and graph theory. 85g:92023
- Symposium:
- Chemical applications of topology and graph theory ★Chemical applications of topology and graph theory. 85g:92023
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- Bailey, Craig K. (with Palmer, E. M.; Kennedy, John W.) Points by degree and orbit size in chemical trees. II. 85b:05098
- Balasubramanian, K. Symmetry and spectra of graphs and their chemical applications. 85h:05070
- Clarke, Bruce L. Qualitative dynamics and stability of chemical reaction networks. (See 85g:92023)
- Davydov, A. S. Description of certain biological processes by means of nonlinear equations. (Russian) 85h:92009
- Day, A. C. (with Mallon, R. B.; Rigby, M. J.) On the use of Riemannian surfaces in the graph-theoretical representation of Möbius systems. 85h:05039
- Erneux, Thomas (with Reiss, Edward L.) Singular secondary bifurcation. 85j:58041
- Farrell, E. J. (with Wahid, S. A.) Matchings in benzene chains. 85a:05067
- Fiedler, Berndol Global Hopf bifurcation in porous catalysts. 85c:58075
- Hall, Peter On the roles of the Bessel and Poisson distributions in chemical kinetics. 85g:80006
- Hirano, Norimichi (with Naito, Koichiro) On the asymptotic behavior of solutions of a reaction-diffusion system. 85i:35083
- Howard, Louis N. Chemical oscillations. 85j:92001
- Hudson, J. L. (with Mankin, J. C.; Rössler, O. E.) Chaos in continuous stirred chemical reactors. (See 85h:58063)
- Jiang, Lu Bifurcation analysis of the Belousov-Zhabotinskii reaction. (Chinese. English summary) 85d:80008
- Jones, Gareth A. (with Lloyd, E. Keith) The automorphism groups of some chemical graphs. 85h:20008
- Kapila, A. K. ★Asymptotic treatment of chemically reacting systems. 85f:80020
- Kennedy, John W. See Bailey, Craig K.; et al., 85b:05098
- Krinskii, V. I. See Mikhailov, A. S., 85k:80018
- Lloyd, E. Keith See Jones, Gareth A., 85h:20008
- Mallon, R. B. See Day, A. C.; et al., 85h:05039
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- Messey, Paul G. Reaction topology: manifold theory of potential surfaces and quantum chemical synthesis design. (See 85g:93023)
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- Naito, Koichiro See Hirano, Norimichi, 85i:35083
- Noyes, Richard M. The interface between mathematical chaos and experimental chemistry. (See 85h:58003)
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## 92A90 Other applications

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- Finch, David V. (with Solomon, Donald C.) A characterization of the range of the divergent beam x-ray transform. 85g:44002
- Paine, Gregory H. The development of Lagrangians for biological models. 85c:49004
- Solomon, Donald C. See Finch, David V., 85g:44002
- Swan, George W. ★ Applications of optimal control theory in biomedicine. 85d:92005

## 93-XX SYSTEMS THEORY; CONTROL (For optimal control, see 49-XX.)

## 93-00 Handbooks, dictionaries, and other reference works

## Bibliography:

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- (Burov, Michael) See Rastrigin, L. A., 85a:93001
- Göldner, Klaus (with Kubik, Stanislav) ★ Nichtlineare Systeme der Regelungstechnik. (German) [Nonlinear systems of control engineering] 85k:93001
- Ivanov, Viktor Aleksandrovich (with Yushchenko, A. S.) ★ Теория дискретных систем автоматического управления. (Russian) [The theory of discrete automatic control systems] 85d:93001
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- Yushchenko, A. S. See Ivanov, Viktor Aleksandrovich, 85d:93001
- Zhelezov, I. G. ★ Сложные технические системы. (Russian) [Complex technical systems] 85h:93001
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- Chebakov, V. B. See Averina, A. D.; et al., 85e:93001
- Fedorov, S. M. See Averina, A. D.; et al., 85e:93001
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- Harris, C. J. (with Valenca, J. M. E.) ★ The stability of input-output dynamical systems. 85i:93001
- Kapustinskas, A. (with Nemura, A.) ★ Идентификация линейных случайных процессов. (Russian) [Identification of linear random processes] 85h:93002
- Lions, Jacques-Louis ★ Contrôle des systèmes distribués singuliers. (French) [Control of singular distributed systems] 85e:93002
- Luchko, S. V. See Averina, A. D.; et al., 85e:93001
- Maśczak, Kazimierz (with Nahorski, Zbigniew) ★ Komputerowa identyfikacja obiektów dynamicznych. (Polish) [Computer identification of dynamical objects] 85a:93003
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- Drăgan, V. (with Halanay, A.) ★ Perturbații singulare—dezvoltări asimptotice. (Romanian) [Singular perturbations—asymptotic expansions] 85c:34001
- (Eykhoof, Pieter) See Trends and progress in system identification, 85i:93037a and 85i:93037b
- Halanay, A. See Drăgan, V., 85c:34001
- Kokotović, P. V. See Saksena, V. R.; et al., 85e:93028
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- (Mandel, A. S.) See Trends and progress in system identification, 85i:93037b
- O'Reilly, J. See Saksena, V. R.; et al., 85e:93028
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- Wierzbicki, A. P. Multiobjective trajectory optimization and model semiregularization. (See 85c:93003)
- Young, Lai Sang Entropy, Lyapunov exponents, and Hausdorff dimension in differentiable dynamical systems. 85a:58058
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## 93-03 Historical (must also be assigned at least one classification number from Section 01)

## secondary classifications (93-03)

- Glushkov, V. M. Theoretical cybernetics. (Russian) (See 85g:01004)

## 93-04 Explicit machine computation and programs (not the theory of computation or programming)

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- Filin, V. V. See Belyanskii, P. V.; et al., (Not in MR)
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- Maksimov, Yu. M. See Belyanskii, P. V.; et al., (Not in MR)

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- Cesareo, G. (with Marino, Riccardo) On the application of symbolic computation to nonlinear control theory. (See 85k:00009)
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## 93-06 Proceedings, conferences, etc.

- (Abramov, Yu. A.) See Mathematical methods of optimization and control in complex systems, 85c:93005
- (Akashi, Hajime) See Control science and technology for the progress of society, 85c:93003 and 85g:93004
- (Avila, Xavier J. R.) See Mathematical modelling in science and technology, 85g:93006
- (Bakaev, A. A.) See Mathematical economic models and numerical methods for the solution of applied problems, 85g:93005
- (Barabanov, A. T.) See Cybernetics in marine transportation, 85d:93003
- (Bapar, Tamar) See Conference: Allerton, communication, control, and computing, 85g:93001
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- (Chernykh, K. F.) See Deformation of continua and control of motion, 85e:93003
- (Dubrov, Ya. A.) See Systems-theoretic methods and their application in automated systems, 85m:93004
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- (Golebo, Z. B.) See Engineering cybernetics, 85c:93004
- (Kalman, R. E.) See Mathematical modelling in science and technology, 85g:93006
- (Koshlyakov, V. N.) See Navigation and control systems, 85e:93004
- (Kukhtenko, A. I.) See Finite-dimensional and distributed control systems, 85d:93004
- (Landau, I. D.) See Mathematical tools and models for control, systems analysis and signal processing, 85m:93002
- (Leonides, C. T.) See Control and dynamic systems, 85g:93002
- (Liasis, Anthanasios I.) See Mathematical modelling in science and technology, 85g:93006
- (Novoselov, V. S.) See Deformation of continua and control of motion, 85e:93003
- (Poor, H. V.) See Conference: Allerton, communication, control, and computing, 85g:93001



- (Rodin, Ervin Y.) See *Mathematical modelling in science and technology*, 85g:93006
- (Tsytkin, Ya. Z.) See *Control in complex nonlinear systems*, 85g:93003 and *Deterministic and stochastic control systems*, 85m:93001
- (Zhivoglyadov, V. P.) See *Synthesis and application of algorithms for information processing in the presence of different type*, 85g:93009
- Asymptotic methods for investigating stochastic systems** ★ Асимптотические методы исследования стохастических систем. (Russian) [Asymptotic methods for investigating stochastic systems] 85k:93003
- Aussais** ★ Outils et modèles mathématiques pour l'automatique, l'analyse de systèmes et le traitement du signal. Vol. 2. (French) [Mathematical tools and models for control, systems analysis and signal processing. Vol. 2] 85m:93002
- Colloquium:**
- Algebraic techniques applied to linear multivariable systems** ★ Outils et modèles mathématiques pour l'automatique, l'analyse de systèmes et le traitement du signal. Vol. 2. (French) [Mathematical tools and models for control, systems analysis and signal processing. Vol. 2] 85m:93002
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- Conference:**
- Allerton, communication, control, and computing** ★ Twenty-first annual Allerton conference on communication, control, and computing. 85g:93001
- IATED, simulation** ★ Progress in modelling and simulation. 85g:93008
- Mathematical modelling** ★ Mathematical modelling in science and technology. 85g:93006
- Control and dynamic systems** ★ Control and dynamic systems. Vol. 21. 85g:93002
- Control in complex nonlinear systems** ★ Управление в сложных нелинейных системах. (Russian) [Control in complex nonlinear systems] 85g:93003
- Control science and technology for the progress of society** ★ Control science and technology for the progress of society. Vol. 2. 85c:93003
- Cybernetics in marine transportation** ★ Кибернетика на морском транспорте. Вып. 12. (Russian) [Cybernetics in marine transportation. No. 12] 85d:93003
- Deformation of continua and control of motion** ★ Деформация сплошных сред и управление движением. (Russian) [Deformation of continua and control of motion] 85e:93003
- Deterministic and stochastic control systems** ★ Детерминированные и стохастические системы управления. (Russian) [Deterministic and stochastic control systems] 85m:93001
- Engineering cybernetics** ★ Техническая кибернетика. Том 16. (Russian) [Engineering cybernetics. Vol. 16] 85c:93004
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- Grenoble** ★ Outils et modèles mathématiques pour l'automatique, l'analyse de systèmes et le traitement du signal. Vol. 2. (French) [Mathematical tools and models for control, systems analysis and signal processing. Vol. 2] 85m:93002
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- Circuits and systems** ★ 1980 IEEE international symposium on circuits and systems proceedings. Vol. 1, 2, 3. 85m:93003
- IFAC Congress:**
- Control science and technology for the progress of society** ★ Control science and technology for the progress of society. Vol. 2. 85c:93003
- Interlaken** ★ Progress in modelling and simulation. 85g:93008
- Itogi Nauki i Tekhniki** ★ Техническая кибернетика. Том 16. (Russian) [Engineering cybernetics. Vol. 16] 85c:93004
- Kyoto** ★ Control science and technology for the progress of society. Vol. 2. 85c:93003
- Mathematical economic models and numerical methods for the solution of applied problems** ★ Экономико-математические модели и численные методы решения прикладных задач. (Russian) [Mathematical economic models and numerical methods for the solution of applied problems] 85g:93005
- Mathematical methods of optimization and control in complex systems** ★ Математические методы оптимизации и управления в сложных системах. (Russian) [Mathematical methods of optimization and control in complex systems] 85c:93005
- Mathematical modelling in science and technology** ★ Mathematical modelling in science and technology. 85g:93006
- Mathematical theory of control and systems** ★ Mathematical theory of control and systems. 85g:93007
- Mathematical tools and models for control, systems analysis and signal processing** ★ Outils et modèles mathématiques pour l'automatique, l'analyse de systèmes et le traitement du signal. Vol. 2. (French) [Mathematical tools and models for control, systems analysis and signal processing. Vol. 2] 85m:93002
- Monticello, Ill.** ★ Twenty-first annual Allerton conference on communication, control, and computing. 85g:93001
- Navigation and control systems** ★ Системы навигации и управления. (Russian) [Navigation and control systems] 85e:93004
- Outils et modèles mathématiques pour l'automatique, l'analyse de systèmes et le traitement du signal** ★ Outils et modèles mathématiques pour l'automatique, l'analyse de systèmes et le traitement du signal. Vol. 2. (French) [Mathematical tools and models for control, systems analysis and signal processing. Vol. 2] 85m:93002
- Proceedings:**
- IEEE international symposium on circuits and systems** ★ 1980 IEEE international symposium on circuits and systems proceedings. Vol. 1, 2, 3. 85m:93003
- Progress in modelling and simulation** ★ Progress in modelling and simulation. 85g:93008

## Symposium:

- Mathematical theory of control and systems** ★ Mathematical theory of control and systems. 85g:93007
- Synthesis and application of algorithms for information processing in the presence of different types of uncertainty** ★ Синтез и применение алгоритмов обработки информации и управления при различных типах неопределенности. (Russian) [Synthesis and application of algorithms for information processing in the presence of different types of uncertainty] 85g:93009
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- Zurich** ★ Mathematical modelling in science and technology. 85g:93006

## secondary classifications (93-06)

- (Dym, Harry) See *Topics in operator theory systems and networks*, 85f:47001
- (Gasyimov, M. G.) See *Problems of optimisation and ACS*, 85g:49004
- (Gohberg, Israel) See *Topics in operator theory systems and networks*, 85f:47001
- (Hoffmann, Karl-Heinz) See *Optimal control of partial differential equations*, 85g:49001
- (Kisilewicz, Michał) See *Functional differential systems and related topics*, 85d:34002
- (Koslov, R. I.) See *Method of Lyapunov functions in the dynamics of nonlinear systems*, 85d:00013 and *Dynamics of nonlinear systems*, 85d:34001
- (Krats, W.) See *Optimal control of partial differential equations*, 85g:49001
- (Loeffel, Hans) See *Symposium: Operations research*, 85h:90006a and 85h:90006b
- (Matrosov, V. M.) See *Method of Lyapunov functions in the dynamics of nonlinear systems*, 85d:00013; *Dynamics of nonlinear systems*, 85d:34001 and *Method of Lyapunov functions and its applications*, 85g:34004
- (Stühly, Paul) See *Symposium: Operations research*, 85h:90006a and 85h:90006b
- (Thoft-Christensen, P.) See *System modelling and optimization*, 85k:90002
- (Vasil'ev, S. N.) See *Method of Lyapunov functions and its applications*, 85g:34004
- Białecki** ★ Functional-differential systems and related topics. 85d:34002
- Conference:**
- Functional differential systems and related topics** ★ Functional-differential systems and related topics. 85d:34002
- Optimal control of partial differential equations** ★ Optimal control of partial differential equations. 85g:49001
- Copenhagen** ★ System modelling and optimization. 85k:90002
- Dynamics of nonlinear systems** ★ Динамика нелинейных систем. (Russian) [Dynamics of nonlinear systems] 85d:34001
- Functional differential systems and related topics** ★ Functional-differential systems and related topics. 85d:34002
- IFIP conference:**
- System modelling and optimization** ★ System modelling and optimization. 85k:90002
- Method of Lyapunov functions and its applications** ★ Метод функций Ляпунова и его приложения. (Russian) [The method of Lyapunov functions and its applications] 85g:34004
- Method of Lyapunov functions in the dynamics of nonlinear systems** ★ Метод функций Ляпунова в динамике нелинейных систем. (Russian) [The method of Lyapunov functions in the dynamics of nonlinear systems] 85d:00013
- Noncausal calculus and related topics** ★ Noncausal calculus and related topics. 85g:60002
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- Optimal control of partial differential equations** ★ Optimal control of partial differential equations. 85g:49001
- Problems of optimization and ACS** ★ Проблемы оптимизации и АСУ. [Problems of optimization and ACS] 85g:49004
- Rehovot** ★ Topics in operator theory systems and networks. 85f:47001
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- St. Gallen** ★ VII. symposium on operations research. Sektionen 1-3. 85h:90006a
- Symposium:**
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- Topics in operator theory systems and networks** ★ Topics in operator theory systems and networks. 85f:47001
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## 93Axx General

## secondary classifications (93Axx)

Sandberg, Irwin W. A perspective on system theory. 85a:01050

## 93A05 Axiomatic system theory

- d'Alessandro, P. (with Rinaldi, G.; Sassano, A.) A function space approach to the foundations of system theory. 85a:93005
- Beer, Stafford Introduction: questions of quest. (See 85k:93002)
- Burks, Arthur W. Computers, control, and intentionality. (See 85g:00029)
- Chen, Bei Fang Pansystems investigation of quotient systems and its applications. (Chinese summary) 85c:93006
- Curry, Patrick M. Theories as systems. 85k:93005

- Klir, George J. General systems concepts. (See 85k:93002)
- Liu, Guo Han (with Zhu, Sui Cai) Solutions of pansystems operator equations. (Chinese summary) 85c:93007
- Maalov, S. Yu. ★ Дедуктивные системы и их экономические приложения. (Russian) [Deductive systems and their economic applications] 85g:93010
- McLean, J. Michael Methods of systems analysis and model building. (See 85k:93002)
- Rusch, B. (with Swillius, G.) Characterization of continuous systems that are digital. 85j:93001
- Rinaldi, G. See d'Alessandro, P.; et al., 85a:93005
- Sassano, A. See d'Alessandro, P.; et al., 85a:93005
- Šiška, Jaromír Transducer, generalized relays and their characterization. 85h:93004
- Swillius, G. See Rusch, B., 85j:93001
- Wang, Min A discussion about pansystems logic conservation of equivalence relation and semiequivalence relation. (Chinese summary) 85c:93008
- Wu, Shou Zhi On the problem of pansystem simulating transformation of ordered relation. (Chinese summary) 85c:93009
- Zhu, Sui Cai See Liu, Guo Han, 85c:93007
- Zhu, Xu Ding Pansystems analysis of edge weighted transportation systems. (Chinese summary) 85c:93010

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- Kamiński, Bartłomiej See Świtalski, Władysław, 85c:00022
- Qin, Guo Guang Some applications of pansystem operation projection principle to dynamic games. (Chinese summary) 85k:90187
- Stalton, R. S. Applicable systems thinking. 85j:90024
- Świtalski, Władysław (with Kamiński, Bartłomiej) Henryk Greniewski's duality theory. (Polish. English and Russian summaries) 85c:00022
- Wang, Jing Lan (with Yang, Xiong Fei) Building mathematical models for systems by using bond graphs. (Chinese. English summary) 85c:00023
- Winiarczyk, Ryszard Synthesis of a generating word in developmental systems  $L(Q)$ . (Polish. English and Russian summaries) 85k:93061
- Yang, Xiong Fei See Wang, Jing Lan, 85c:00023

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- Chua, Leon O. See Matsumoto, Tadaaki; et al., (85m:93003)
- Deng, Ju Long The group of grey systems—the grey group. (Chinese. English summary) 85h:93006
- Ichiraku, S. See Matsumoto, Tadaaki; et al., (85m:93003)
- Kawakami, Hiroshi See Matsumoto, Tadaaki; et al., (85m:93003)
- Lebel, J. D. System dynamics. 85h:93008
- Matrosov, V. M. See Vasil'ev, S. N., (85g:93004)
- Matsumoto, Tadaaki (with Chua, Leon O.; Kawakami, Hiroshi; Ichiraku, S.) Geometric properties of dynamic nonlinear networks: transversality, well-posedness and eventual passivity. (See 85m:93003)
- Nefedov, V. N. (with Popov, N. M.) Use of the principle of consistency in regularization of the problem of internal design of technological systems. (Russian) (Not in MR)
- Nowacki, Zbigniew A. A program for the development of general systems theory. (Russian and Polish summaries) 85m:93005
- Popov, N. M. See Nefedov, V. N., (Not in MR)
- Starowiecki, M. Analyse structurale des systèmes complexes. (English summary) [Structural analysis of complex systems] 85c:93001
- Vasil'ev, S. N. (with Matrosov, V. M.) Vector Lyapunov functions method in the abstract theory of control. (See 85g:93004)

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- Abraham, R. H. Complex dynamical systems. (See 85g:93006)
- Beletskii, V. V. ★ Двухгораз хода. (Russian) [Bipedal locomotion] 85k:92004
- Bublik, B. N. Methods of modeling and optimization of control systems developed in the Department of Cybernetics. (Russian) 85k:49001
- Fleishman, B. S. ★ Основы системологии. (Russian) [Foundations of systemology] 85f:00015
- Hormung, Ulrich The mathematics of hysteresis. 85m:34128
- Lobry, C. Analyse non standard en théorie des systèmes. [Nonstandard analysis in systems theory] (See 85g:49003)
- Luo, Liao Fu The order-parameter equation of a nonlinear open system. (Chinese. English summary) 85i:00028
- Šiška, Jaromír Transducer, generalized relays and their characterization. 85h:93004
- Skvoretz, John Languages and grammars of action and interaction: some further results. 85h:68070
- Świtalski, Władysław System—model—system of models. (Polish. English and Russian summaries) 85c:90047
- Vogt, Roland ★ Die Systemwissenschaften. (German) [The systems sciences] 85h:00014

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- Akbarkhodjaev, Sh. N. See Zhuk, K. D., (Not in MR)
- Mahmoud, M. S. See Singh, M. G.; et al., (85c:93003)
- (Pichai, V.) See Tarjan, Robert Endre, 85j:93002
- Pimenov, V. Ya. Planned introduction of random factors into the functioning mechanism of an active system. 85d:93005
- (Seser, M. E.) See Tarjan, Robert Endre, 85j:93002
- (Šiljak, D. D.) See Tarjan, Robert Endre, 85j:93002
- Singh, M. G. (with Mahmoud, M. S.; Titi, A.) A survey of recent developments in hierarchical optimisation and control. (See 85c:93003)
- Sydow, Achim Hierarchical concepts in modelling and simulation. (See 85g:93008)
- Tarjan, Robert Endre Input-output decomposition of dynamic systems is NP-complete. 85j:93002
- Titi, A. See Singh, M. G.; et al., (85c:93003)

- Zhuk, K. D. (with Akbarkhodjaev, Sh. N.) ★ Координируемость и логические структуры функционирования одного класса сложных систем управления. (Russian) [Coordination and logical structures of the functioning of a class of complex control systems] (Not in MR)

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- Baqar, Tamer A new method for the Stackelberg solution of differential games with sampled-data state information. (See 85c:93003)
- Csuchra, Waldemar (with Jędrzejewicz, Piotr) Allocation of resources in a system of plants. (Polish. English and Russian summaries) 85k:90084
- Haimes, Yacov Y. See Tarvainen, K.; et al., (85c:93003) and Shima, Takashi, (Not in MR)
- Iwasumi, Tetsuo See Kando, Hisashi; et al., 85a:93125
- Jamshidi, M. See Wang, Chii Ming, 85b:49057
- Jędrzejewicz, Piotr See Csuchra, Waldemar, 85k:90084
- Kando, Hisashi (with Iwasumi, Tetsuo; Ukai, Hiroyuki) Stability analysis of hierarchically structured two-level optimal regulators under structural perturbations. 85a:93125
- Lefkowitz, I. See Tarvainen, K.; et al., (85c:93003)
- Litvinchev, I. S. Certain problems of allocating resources in two-level systems with perfect information at the center and locally optimal behavior of subsystems. (Not in MR)
- Shima, Takashi (with Haimes, Yacov Y.) The convergence properties of hierarchical overlapping coordination. (Not in MR)
- Tarvainen, K. (with Haimes, Yacov Y.; Lefkowitz, I.) Decomposition method in multiobjective discrete-time dynamic problems. (See 85c:93003)
- Ukai, Hiroyuki See Kando, Hisashi; et al., 85a:93125
- Wang, Chii Ming (with Jamshidi, M.) Optimal control of large-scale nonlinear systems with time-delay. 85b:49057

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- Andrei, Neculai Sparse systems. Digraph exact disturbance rejection. 85b:93001
- Aracil, Javier Qualitative analysis and bifurcations in system dynamics models. 85g:93011
- Araki, Mitsuhiro (with Saeki, Masami) A quantitative condition for the well-posedness of interconnected dynamical systems. 85c:93011
- Demidenko, N. D. See Devyatov, B. N., 85c:93012
- Devyatov, B. N. (with Demidenko, N. D.) ★ Теория и методы анализа управляемых распределенных процессов. (Russian) [Theory and methods of the analysis of controllable distributed processes] 85c:93012
- Iijima, J. See Takahara, Y.; et al., 85c:93013
- Ikeda, Masao (with Šiljak, D. D.; White, David E.) An inclusion principle for dynamic systems. 85j:93003
- See also Yoshikawa, Tetsuo, 85d:93006
- Jury, E. I. Counterexamples in multidimensional system theory. (See 85m:93003)
- Lewis, Frank L. Descriptor systems: decomposition into forward and backward subsystems. 85b:93002
- Lunze, J. A majorization approach to the quantitative analysis of incompletely known large scale systems. 85a:93006
- Nakano, B. See Takahara, Y.; et al., 85c:93013
- Repperger, Daniel W. A doubling approach for determining the solution of Riccati-type equations utilizing matrix continued fractions. 85a:93007
- Saeki, Masami See Araki, Mitsuhiro, 85c:93011
- Šiljak, D. D. See Ikeda, Masao; et al., 85j:93003
- Starowiecki, M. (with Toro, V.) Structural analysis of complex systems by means of canonical analysis. (Russian summary) (Not in MR)
- Takahara, Y. (with Nakano, B.; Iijima, J.) A relation between the decomposition into a disjunctive complex system and the Sprague-Grundy function. 85c:93013
- Toro, V. See Starowiecki, M., (Not in MR)
- Tsafestas, S. G. Large-scale systems modeling in distributed-parameter control and estimation. (See 85i:00016)
- White, David E. See Ikeda, Masao; et al., 85j:93003
- Wu, Xin Zhan Investigation and applications of pansystem pattern recognition. I. (Chinese summary) 85g:93012a
- Investigation and applications of pansystems pattern recognition. II. (Chinese summary) 85g:93012b
- Yoshikawa, Tetsuo (with Ikeda, Masao) Decentralized adaptive control of large-scale systems—a parameter adaption method. 85d:93006

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- Anapol'skii, L. Yu. See Matrosov, V. M.; et al., 85m:93029
- Attarzadeh, F. Block decomposition algorithm for time-invariant systems using the generalized matrix sign function. 85a:93051
- Bien, Zeungnam See Lyou, Joon; et al., 85h:93048
- Chen, Bei Fang (with Wu, Shou Zhi) The problem of equilibrium under quasitransitive preferences—applications of pansystems methodology to economics. (Chinese. English summary) 85h:93032
- Chen, Ming Jeh (with Desoer, C. A.) Algebraic theory for robust stability of interconnected systems: necessary and sufficient conditions. 85c:93081
- Chen, Peng Nian A vector function method for practical stability analysis of composite systems. (Chinese. English summary) 85k:93048
- Chen, Yu Liu (with Mahmoud, M. S.; Singh, M. G.) An iterative block-diagonalization procedure for decentralized optimal control. 85f:49060
- Christin, Ivan Financial systems: a few theoretical and algebraic considerations for their modeling. 85h:90028
- Desoer, C. A. See Chen, Ming Jeh, 85c:93081
- Djordjevic, Milorad Stability analysis of large scale systems whose subsystems may be unstable. 85c:93060

- Eisenfeld, Jerome (with Grundy, S. M.) Extension of compartmental parameters to blocks of compartments with application to lipoprotein kinetics. **85c:93012**
- Geromel, J. C. Decentralized stabilization and stability domain estimation of continuous and discrete nonlinear systems. **85m:93032**
- Gien, D. (with Lang, Bernard Albert; Miellou, J.-C.; Raffort, L.; Spiteri, P.) Commande optimale de systèmes complexes. (English summary) [Optimal control of complex systems] (Not in MR)
- Grundy, S. M. See Eisenfeld, Jerome. **85c:93012**
- Hayakawa, Yoshikazu (with Hosoe, Shigeyuki; Hayaishi, Mutsami; Ito, Masami) On the structural controllability of compartmental systems. **85a:92013**
- Hayaishi, Mutsami See Hayakawa, Yoshikazu; et al. **85a:92013**
- Ho, Yu Chi (with Olsder, Geert Jan) Aspects of the Stackelberg game problem— incentive, bluff, and hierarchy. (See **85c:93003**)
- Hosoe, Shigeyuki See Hayakawa, Yoshikazu; et al. **85a:93013**
- (Huang, Paul C. K.) See Sundaresan, H. W., **85m:49003**
- Ikeda, Masao (with Siljak, D. D.; White, Dennis E.) On decentralized control with overlapping information sets. **85d:93025**
- (with Siljak, D. D.; Yasuda, Kazunori) Optimality of decentralized control for large-scale systems. **85a:93112**
- Ito, Masami See Hayakawa, Yoshikazu; et al. **85a:92013**
- Jamshidi, M. (with Wang, Chii Ming) A computational algorithm for large-scale nonlinear time-delay systems. **85b:49056**
- Ke's, I. The linear lumping method in suboptimal control synthesis. (Russian. English and Estonian summaries) **85c:49054**
- Kim, Young Seog See Lyoo, Joon; et al. **85h:93048**
- Koble, H. M. See Sorenson, H. W., **85m:49003**
- Korotkova, T. I. Sufficient conditions for decomposability of control problems. (Russian) **85f:49039**
- Koslov, R. I. See Matrosov, V. M.; et al. **85m:93029**
- Lang, Bernard Albert See Gien, D.; et al. (Not in MR)
- Leela, S. Large-scale systems, cone-valued Lyapunov functions and quasisolutions. (See **85c:34003**)
- Lyoo, Joon (with Kim, Young Seog; Bien, Zeungnam) A note on the stability of a class of interconnected dynamic systems. **85h:93048**
- Mahmoud, M. S. See Chen, Yu Liu; et al. **85f:49060**
- Matrosov, V. M. (with Anapol'skii, L. Yu.; Koslov, R. I.) The method of vector Lyapunov functions in the theory of large-scale systems. (Russian) **85m:93029**
- Miellou, J.-C. See Gien, D.; et al. (Not in MR)
- Moylan, Peter J. (with Vannelli, A.; Vidyasaagar, M.) On the stability and well-posedness of interconnected nonlinear dynamical systems. (See **85m:93003**)
- Nikul'shchikova, L. A. Almost optimal filter with non-Gaussian noise in the measurement. (Russian) **85c:93047**
- Nwokah, O. D. I. On the stability of linear composite systems with delays. **85a:93117**
- Olsder, Geert Jan See Ho, Yu Chi. **(85c:93003)**
- Raffort, L. See Gien, D.; et al. (Not in MR)
- Růžička, Milan Some problems in modelling of real systems by formalized ones. **85c:00038**
- Silindir, Vayssel An eigenvalue assignment theorem and its application. **85f:93031**
- Siljak, D. D. See Ikeda, Masao; et al. **85a:93112** and **85d:93025**
- Singh, M. G. See Chen, Yu Liu; et al. **85f:49060**
- Sorenson, H. W. (with Koble, H. M.) The PMSS approach to large-scale optimal control problems. **85m:49003**
- Spiteri, P. See Gien, D.; et al. (Not in MR)
- Sundaresan, H. W. Correction to: "On the design of a decentralized observation scheme for large-scale systems" [IEEE Trans. Automat. Control **29** (1984), no. 3, 274–276; MR **85b:93022**] by the author and P. C. K. Huang. **85c:93030**
- Umnov, Alexander Modeling dynamic systems of variable structure. (See **85k:90002**)
- Vannelli, A. See Moylan, Peter J.; et al. **(85m:93003)**
- Vidyasaagar, M. See Moylan, Peter J.; et al. **(85m:93003)**
- Wang, Chii Ming See Jamshidi, M., **85b:49056**
- Wang, Lian See Wang, Mu Qiu. **85m:34079**
- Wang, Mu Qiu (with Wang, Lian) Stability of large-scale systems with respect to part of the variables. (Chinese. English summary) **85m:34079**
- White, Dennis E. See Ikeda, Masao; et al. **85d:93025**
- Wu, Shou Zhi See Chen, Bei Fang. **85h:90032**
- Yasuda, Kazunori See Ikeda, Masao; et al. **85a:93112**

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- Chen, Bei Fang Some logic transforming conservations of semiequivalence pansystems theory. (Chinese summary) **85f:93002**
- Huang, Yue Grey linear spaces. (Chinese. English summary) **85d:93007**
- Liu, Guo Han (with Zhu, Sui Cai) Inverse problems in pansystem series-parallel analysis. (Chinese. English summary) **85d:93008**
- Sugeno, M. See Yamazaki, Tsukasa. (Not in MR)
- Tong, Richard M. A retrospective view of fuzzy control systems. (Not in MR)
- Wu, Xue Mou Investigation and applications of pansystems recognition theory and pansystems-operations research of large-scale systems. I. **85f:93003**
- Yamazaki, Tsukasa (with Sugeno, M.) Fuzzy control. (Japanese) (Not in MR)
- Zhu, Sui Cai See Liu, Guo Han. **85d:93008**

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- Biesiada, Henryk Choice and methods for determining the parameters of tree structures generated by evolutive systems. (Polish. English and Russian summaries) **85j:92003**
- (Javůrek, Zdeněk) See Integration of science and the systems approach. **85m:00015**
- Malov, K. M.  $M$ -transformations of graphs. Quantizations. Couplings. Isomorphism invariants. **85d:05220**
- Spriet, Jan A. (with Vansteenkiste, Ghislain C.) ★Computer-aided modelling and simulation. **85c:00035**

- (Ursul, A. D.) See Integration of science and the systems approach. **85m:00015**
- Vansteenkiste, Ghislain C. See Spriet, Jan A., **85c:00035**
- Wu, Shou Zhi Applications of pansystems methodology to economics. I. A kind of social choice from individual values on weak conditions. (Chinese summary) **85d:90009**
- Pansystems investigation of fuzzy transitivity. (Chinese. English summary) **85m:03036**
- (Zeman, Jiří) See Integration of science and the systems approach. **85m:00015**
- Zhou, Pei De Constructing the structure function of a system. (Chinese) (Not in MR)
- Integration of science and the systems approach ★Integration of science and the systems approach. **85m:00015**

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- Hasewinkel, Michiel Lectures on invariants, representations and Lie algebras in systems and control theory. **85b:93003**
- Tchob, Krzysztof On generic properties of linear systems: an overview. **85a:93006**

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- Barnett, S. ★Polynomials and linear control systems. **85c:93001**

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- Adachi, Yoshihiro See Funahashi, Y.; et al., **(85g:93004)**
- Ahmed, N. U. See Colmenares, W., **85k:93008**
- Akashi, Hajime See Terashima, Kazuhiko; et al., **85d:93013**
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- Amillo, José M. (with Somolinos, Alfredo) Nonlinear controllability: a sufficient condition. (Spanish. English summary) **85j:93004**
- Angell, T. S. The controllability problem for nonlinear Volterra systems. **85g:93013**
- Arnold, W. F. See Laub, A. J., **85c:93018**
- Bacciotti, Andrea (with Stefani, Gianna) On the relationship between global and local controllability. **85a:93009**
- On the positive orthant controllability of two-dimensional bilinear systems. **85c:93014**
- Balachandran, Krishnan (with Somasundaram, D.) Controllability of nonlinear systems consisting of a bilinear mode with time-varying delays in control. **85b:93004**
- Global and local controllability of nonlinear systems. (Not in MR)
- See also Somasundaram, D., **85a:93025** and **85c:93022**
- Balachandran, Krishnan (with Somasundaram, D.) Controllability of a class of nonlinear systems with distributed delays in control. **85a:93010**
- Banks, S. P. Controllability, optimal control and receding horizon control of distributed multipass processes. **85c:93005**
- Barmish, B. Ross See Petersen, I. R., **85d:93012**
- Bartosiewicz, Zbigniew Approximate controllability of neutral systems with delays in control. **85c:93015**
- Bhattacharyya, Shankar Prasad Generalized controllability,  $(A, B)$ -invariant subspaces and parameter invariant control. **85a:93011**
- Bianchini, Rosa Maria Instant controllability of linear autonomous systems. **85a:93012**
- Local controllability, rest states and cyclic points. **85f:93004**
- (with Stefani, Gianna) Normal local controllability of order one. **85b:93005**
- Bittanti, S. (with Colaneri, P.; Guardabassi, G.) Periodic solutions of periodic Riccati equations. **85m:93006**
- Bonnard, Bernard Contrôlabilité de systèmes mécaniques sur les groupes de Lie. (English summary) [Controllability of mechanical systems on Lie groups] **85j:93005**
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- Burrows, C. R. (with Sahinkaya, M. N.) A modified algorithm for determining structural controllability. **85a:93013**
- Carlson, David H. (with Datta, Biswa Nath; Schneider, Hans) On the controllability of matrix pairs  $(A, K)$  with  $K$  positive semidefinite. **85g:93014**
- Cesareo, G. (with Marino, Riccardo) On the application of symbolic computation to nonlinear control theory. (See **85k:00009**)
- Chen, Zhao Kuan (with Zhao, Ke You) A study of the controllability of a class of infinite-dimensional linear systems with a control energy constraint. (Chinese. English summary) **85m:93007**
- Cheremenskii, A. On the stabilization of a wide class of linear autonomous control systems. (Russian) **85k:93006**
- Chukwu, E. N. Null controllability in function space of nonlinear retarded systems with limited control. **85k:93007**
- Total controllability to affine manifolds of control systems. **85c:93006**
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- Colmenares, W. (with Ahmed, N. U.) A controllability counter-example. **85k:93008**
- Crouch, P. E. (with Silva Leite, F.) On the uniform finite generation of  $SO(n, \mathbb{R})$ . **85c:93016**
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- Davison, Edward J. Comments on: "An input/output approach to the structural analysis of digraphs" [IEEE Trans. Systems Man Cybernet. **12** (1982), no. 1, 15–24; MR **83d:90059**] by J. R. Burns and W. H. Winstead. **85a:93015**
- Decusse, J. (with Lafay, J. F.; Malabre, M.) Further results on Morgan's problem. **85c:93017**
- Dimopoulos, N. (with Newcomb, R. W.) Stability properties of a class of large scale neural networks. (See **85m:93003**)
- Einzig, Rikun Between controllable and uncontrollable. **85f:93005**
- Elkin, V. I. Transformation groups and controllable systems. (Russian) **85a:93016**
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- Fillimonov, A. B. Controlling the spectrum of linear stationary objects with lags. 85f:93006
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- Punahashi, Y. (with Adachi, Yoshihiro; Inagaki, Makoto) State determination of bilinear systems and its dependence on input class. (See 85g:93004)
- Gabasov, R. (with Karpuk, V. V.; Kirillova, F. M.) Some control problems for hereditary systems. 85h:93008
- Cahl, Robert D. Local controllability of nonlinear systems. 85b:93006
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- Huang, Garng M. (with Tarn, T. J.; Clark, John W.) On the controllability of quantum-mechanical systems. 85d:93009
- Hunt, L. R. (with Su, Ren Jeng; Meyer, George) Global transformations of nonlinear systems. 85d:93009
- Ignatenko, V. V. (with Yanovich, V. I.) Controllability and reconstruction of systems with delay. (See 85d:34002)
- Inagaki, Makoto See Punahashi, Y.; et al., (85g:93004)
- Isidori, Alberto See Krener, Arthur J., 85a:93019
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- Ivanov, A. G. Effective conditions for controllability of a linear nonstationary system. (Russian) 85k:93011  
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- Ivanova, I. A. See Ivanov, A. G., 85i:93002
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- Kopelkina, T. B. A controllability of nonlinear delay systems. (See 85d:34002)
- Krakhoto, V. V. (with Alsevirch, V. V.; Razmyslovich, G. P.) On the control theory of dynamic systems with delay. (See 85d:34003)
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- Lafay, J. F. See Descusse, J.; et al., 85c:93017
- Laub, A. J. (with Arnold, W. F.) Controllability and observability criteria for multivariable linear second-order models. 85c:93018
- Levakov, A. A. Controllability of nonlinear systems. (Russian) 85m:93008
- Levit, M. Yu. Sufficient conditions for local controllability of nonlinear systems with respect to higher approximations. (Russian) 85f:93007
- Louis, J.-C. (with Wexler, D.) On exact controllability in Hilbert spaces. 85c:93019  
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- Lun'kov, V. A. Preservation of controllability in difference approximation. (Russian) 85i:93003
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- Siotte, Jean-Jacques E. Sliding control of nonlinear systems. (See **85i:00011**)
- Su, Ren Jeng (with Hunt, L. R.) A separation principle for automatic control systems design. (See **85i:00011**)
- Swern, Frederic L. Analysis of oscillations in systems with polynomial-type nonlinearities using describing functions. **85a:93084**
- Vaintin, Augusto On the Preisach model for hysteresis. **85k:93038**
- Vladimirov, A. A. Limiting periodicity of automatic control systems with hysteresis nonlinearities. **85k:93039**
- Voroshilin, S. E. See Bakdoov, V. A., **85c:93055**
- Yumagulov, M. G. Asymptotics of large oscillations of nonlinear control systems. (Russian. Tajiki summary) (Not in MR)

## secondary classifications (93C10)

- Ardeana, Mark D. Solution algorithms for nonlinear singularly perturbed optimal control problems. **85b:49035**
- Artstein, Zvi Stabilization with relaxed controls. **85h:93054**
- Balachandran, Krishnan (with Somsundaram, D.) Controllability of nonlinear systems consisting of a bilinear mode with time-varying delays in control. **85b:93004**
- Global and local controllability of nonlinear systems. (Not in MR)
- Bonnard, Bernard Contrôlabilité de systèmes mécaniques sur les groupes de Lie. (English summary) [Controllability of mechanical systems on Lie groups] **85j:93005**
- Bulsara, Adi (with Lakatos-Lindenberg, Katja; Shuler, Kurt E.) Application of linearization methods to driven nonlinear systems. **85k:70018**
- Cebuhar, W. A. (with Costanza, V.) Approximation procedures for the optimal control of bilinear and nonlinear systems. **85b:49074**
- Chua, Leon O. See Tang, Yaw Shing; et al., **85c:58084**
- Clark, John W. See Huang, Gang M.; et al., **85h:93009**
- Costanza, V. See Cebuhar, W. A., **85b:49074**
- Crăciunag, P. (with D'Ambrosio, Ubratan; Ioniță, N.; Maravall Casenoves, D.) Contributions à l'étude des systèmes aux structures complexes. I. Problèmes à la frontière pour certains systèmes non linéaires aux opérateurs héréditaires et polyvibrants, ou bien aux dérivées totales au sens de Mauro Picone, d'ordre supérieur. [Contributions to the study of systems with complex structures. I. Boundary value problems for certain nonlinear systems with hereditary and polyvibrating operators, or with total derivations in the sense of Mauro Picone, of higher order] **85c:45017**
- Csarniak, Andrzej (with Kudrewicz, Jacek) The convergence of Volterra series for nonlinear networks. **85m:94040**
- D'Ambrosio, Ubratan See Crăciunag, P.; et al., **85c:45017**
- Desoer, C. A. (with Lin, C. A.) Two-step compensation of nonlinear systems. **85a:93111**
- Emel'yanov, S. V. (with Korovin, S. K.; Ulanov, B. V.) Control of nonstationary dynamic systems with the use of coordinate-parametric and parametric feedbacks. **85j:93022**
- Fomin, G. A. See Prolov, E. B., **85a:93017**
- Prolov, E. B. (with Fomin, G. A.) Local attainability of nonlinear systems. (Russian) **85a:93017**
- Fukuma, A. (with Matsubara, Masakazu; Watanabe, Norihiro; Onogi, K.) Bifurcations in the frequency response of nonlinear feedback control systems. **85e:58097**
- Göldner, Klaus (with Kubik, Stanislaw) ★ Nichtlineare Systeme der Regelungstechnik. (German) [Nonlinear systems of control engineering] **85k:93001**
- Guckenheimer, John Toolkit for nonlinear dynamics. **85a:58025**
- Hejmo, Władysław On the sensitivity of a time-optimal positional control. **85a:93062**
- Huang, Gang M. (with Tarn, T. J.; Clark, John W.) On the controllability of quantum-mechanical systems. **85h:93009**
- Hunt, L. R. (with Su, Ren Jeng; Meyer, George) Global transformations of nonlinear systems. **85d:93009**
- Ichmann, Achim (with Nürnberger, Ines; Schmale, Wiland) Time-varying polynomial matrix systems. **85k:93022**
- Ioniță, N. See Crăciunag, P.; et al., **85c:45017**
- Jones, John, Jr. (with Martin, Charles R.; Udem, Halvor A.) Solutions of higher-order Riccati-type matrix equations. **85i:15022**
- Kalouptsidis, Nicholas See Tsinias, J., **85a:93037**
- Korovin, S. K. See Emel'yanov, S. V.; et al., **85j:93022**
- Krasnosel'skii, A. M. Forced periodic oscillations in complex nonlinear systems. **85i:34019**
- Kubik, Stanislaw See Göldner, Klaus, **85k:93001**
- Kubyskin, V. A. Solutions of finite-dimensional nonlinear problem of moments for control problems. **85i:49037**
- Kudrewicz, Jacek See Csarniak, Andrzej, **85m:94040**
- Lakatos-Lindenberg, Katja See Bulsara, Adi; et al., **85k:70018**
- Levakov, A. A. Controllability of nonlinear systems. (Russian) **85m:93008**
- Lin, C. A. See Desoer, C. A., **85a:93111**
- Maravall Casenoves, D. See Crăciunag, P.; et al., **85c:45017**

- Martin, Charles R. See Jones, John, Jr.; et al., 85i:15022
- Matsuhara, Masaharu See Fukuma, A.; et al., 85e:58097
- Mees, A. I. A plain man's guide to bifurcations. 85a:58075  
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- Meyer, George See Hunt, L. R.; et al., 85d:93000
- Mironov, A. V. Continuous dependence on control of solutions of a nonlinear integral equation. (Russian) 85k:45016
- Mitribkhi, Yu. V. Extremal control of plants with a threshold performance criterion. 85f:93024
- Mockaleho, A. I. ★Методы нелинейных отображений в оптимальном управлении. (Russian) [Nonlinear mapping methods in optimal control] 85h:93003
- Nijmeijer, Henk The triangular decoupling problem for nonlinear control systems. 85j:93016
- Nürnberg, Ines See Ichmann, Achim; et al., 85k:93022
- Ohtani, Yoshihara A controllability of certain nonlinear control systems. (Japanese. English summary) 85i:93005
- Onogi, K. See Fukuma, A.; et al., 85e:58097
- Popov, V. M. Triggered systems and the extension problem for gradient systems. 85a:34069
- Sandberg, Irwin W. Expansions for discrete-time nonlinear systems. 85b:94041  
The mathematical foundations of associated expansions for mildly nonlinear systems. 85b:93015
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- Shal'nev, V. D. Qualitative investigation of the cylindrical phase space of a nonlinear dynamical system from the theory of phase synchronization. (Russian) 85c:58083
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- Singh, Sahjendra N. Functional reproducibility in nonlinear systems using dynamic compensation. 85c:93027
- Somasundaram, D. See Balachandran, Krishnan, 85b:93004
- Stepanov, A. V. An optimal linear damper of the first mode of characteristic oscillations of conservative systems. (Russian) 85g:70026
- Su, R. Jong See Hunt, L. R.; et al., 85d:93000
- Tang, Yaw Shing (with Mees, A. I.; Chua, Leon O.) Hopf bifurcation via Volterra series. 85c:58084
- Tarn, T. J. See Huang, Gang M.; et al., 85h:93009
- Tatnala, J. (with Kalouptsidia, Nicholas) Invertibility of nonlinear analytic single-input systems. 85a:93037
- Ulanov, B. V. See Emel'yanov, S. V.; et al., 85j:93022
- Undem, Halvor A. See Jones, John, Jr.; et al., 85i:15022
- Watanabe, Norihiro See Fukuma, A.; et al., 85e:58097
- Zeits, M. Controllability canonical (phase-variable) form for nonlinear time-variable systems. 85a:93029

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- Abgaryan, K. A. (with Grigoryan, F. P.) On the synthesis of linear time-dependent systems with scalar control. (Russian. Armenian summary) 85j:93032
- Ahagaliyev, S. A. (with Murzabekov, Z. N.) On a reconstruction problem. (Russian) 85e:93024
- Bi, Da Chuan (with Zhu, Guang Tien) The optimal control of the power distribution of the nuclear reactor. (See 85g:93004)
- Bobylyov, N. A. (with Krasnosel'skiĭ, M. A.) Approximate construction of self-oscillatory modes in automatic control systems. (Russian) 85h:93038
- Emel'yanov, S. V. (with Korovin, S. K.; Ulanov, B. V.) Control of nonstationary dynamic systems with coordinate-parametric feedback. 85a:93085
- Grigoryan, F. P. See Abgaryan, K. A., 85j:93032
- Janiak, Adam (with Stankiewicz, Anna) The equivalence of local and global time-optimal control of a complex of operations. 85d:93028
- Korovin, S. K. See Emel'yanov, S. V.; et al., 85a:93085
- Krasnosel'skiĭ, M. A. See Bobylyov, N. A., 85h:93038
- Lindquist, Anders (with Martin, Clyde F.; Picci, Giorgio) Extreme points of Riccati inequalities. (Not in MR)
- Martin, Clyde F. See Lindquist, Anders; et al., (Not in MR)
- Murzabekov, Z. N. See Ahagaliyev, S. A., 85e:93024
- Nieuwenhuis, J. W. About positive invariance and asymptotic stability. 85k:93040
- Picci, Giorgio See Lindquist, Anders; et al., (Not in MR)
- Shalyapina, O. V. Synthesis of controls and the Cauchy formula for linear systems with deviating argument of neutral type. (Russian. English summary) 85j:93033
- Stankiewicz, Anna See Janiak, Adam, 85d:93028
- Ulanov, B. V. See Emel'yanov, S. V.; et al., 85a:93085
- Yasuda, Yutaka Synthesis of linear model-following systems using measured output feedback. (Not in MR)
- Zhu, Guang Tien See Bi, Da Chuan, (85g:93004)

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- Feinstein, C. D. (with Oren, S. S.) A Newton-type algorithm for the solution of the implicit programming problem. 85k:49077
- Gichev, Todor R. Convergence of the solution of a linear singularly perturbed time-optimality problem—the conditionally stable case. (Russian) 85i:49068
- Ignatenko, V. N. (with Stenin, A. A.) The number of switchings in control systems that are optimal with respect to fuel consumption. (Russian) 85c:93022
- Kilmer, W. (with Kroll, W.) Riccati equation solution for controllers with continuous delays. 85c:49029
- Kochubievskii, I. D. (with Shapiro, A. P.) Models of the behavior of systems with discrete time in the functioning law. (Russian) 85d:93031
- Kroll, W. See Kilmer, W., 85c:49029
- Lancaster, Peter (with Tismenetsky, M.) Inertia characteristics of selfadjoint matrix polynomials. 85f:15010

- Lyubimtssev, Ya. K. (with Metrikin, V. S.) Application of the method of Lyapunov functions to the study of periodic regimes of motion in a system with impact interactions. (Russian) 85e:58078
- Metrikin, V. S. See Lyubimtssev, Ya. K., 85e:58078
- Michel, Anthony N. See Skar, S. J.; et al., 85e:34041
- Miller, Richard K. See Skar, S. J.; et al., 85e:34041
- Oren, S. S. See Feinstein, C. D., 85d:93031
- Shapiro, A. P. See Kochubievskii, I. D., 85d:93031
- Skar, S. J. (with Miller, Richard K.; Michel, Anthony N.) On periodic solutions in systems of high order differential equations. 85e:34041
- Stenin, A. A. See Ignatenko, V. N., 85c:49022
- Tismenetsky, M. See Lancaster, Peter, 85f:15010

## 93C20 Systems governed by partial differential equations

- Amouroux, M. (with El Alami, N.; El Jaï, Abdelhak) Comment observer l'état d'un système parabolique. (English summary) [How to observe the state of a parabolic system] 85a:93086
- Azor, Ruth See Horowitz, Isaac, 85m:93023
- Banks, S. P. The receding horizon principle for distributed systems. 85i:93019
- Curtain, Ruth F. Tracking and regulation for distributed parameter systems. (Portuguese summary) 85f:93034  
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- Finite-dimensional compensators for parabolic distributed systems with unbounded control and observation. 85c:93025
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- El Jaï, Abdelhak See Amouroux, M.; et al., 85a:93086
- Friedly, John C. Contributions to a state space theory for linear partial differential equation models. (See 85g:93006)
- Horowitz, Isaac (with Azor, Ruth) Uncertain partially noncausal distributed feedback systems. 85m:93023
- Kobayashi, Toshihiro Regulator design for distributed parameter systems with constant disturbances. 85j:93034
- Lätti, Isto See Pohjolainen, Seppo, 85a:93067
- Pervovskii, A. A. (with Solonina, N. V.) Suboptimal finite-dimensional control for a distributed process. I. A deterministic problem of analytical design. 85k:93041
- Pohjolainen, Seppo (with Lätti, Isto) Robust controller for boundary control systems. 85a:93087
- Solonina, N. V. See Pervovskii, A. A., 85k:93041
- Tsafestas, S. G. Hybrid simulation of distributed parameter systems: the state-of-the-art. 85i:93020
- Wang, Kang Ning Controllability and observability for distributed parameter control systems. 85c:93026
- Zhao, Yi A form of the generalized moment theorem and a discussion on semilinear control systems. (Chinese. English summary) 85k:93042
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- Balas, Mark J. Linear distributed parameter systems: closed-loop exponential stability with a finite-dimensional controller. (Not in MR)  
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- Banks, S. P. (with Mousavi-Khalkhali, S. A.) On optimal control of plasma confinement. 85b:49049  
Controllability, optimal control and receding horizon control of distributed multipass processes. 85c:93005
- Barbu, Viorel (with Da Prato, G.) ★Hamilton-Jacobi equations in Hilbert spaces. 85b:49046  
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- Bolintineanu, S. Feedback stabilization of parabolic systems by a modal compensator. 85c:93055
- Borukhov, V. T. (with Kolesnikov, P. M.) Identification of input signals in distributed parameter systems. 85h:93027
- Corduneanu, C. (with Dougalis, V.) A semidiscretization procedure for FitzHugh-Nagumo equations. 85g:92008
- Da Prato, G. See Barbu, Viorel, 85b:49046
- Dougalis, V. See Corduneanu, C., 85g:92008
- Egorov, A. I. (with Kapustyan, V. E.) Synthesis of optimal control of an oscillatory process with time delay. (Russian) 85k:93028
- Putagami, T. The dynamic finite element and nonlinear programming method in control of transient differential systems. (See 85g:93004)
- Glashoff, Klaus (with Sprekels, J.) The regulation of temperature by thermostats and set-valued integral equations. 85d:45013
- Kapustyan, V. E. See Egorov, A. I., 85k:93028
- Khapalov, A. Yu. Minimax mean-square filtering for a hyperbolic system. (Russian) 85i:93033
- Kobayashi, Toshihiro A digital adaptive control law for a parabolic distributed parameter system. 85d:93030
- Kolesnikov, P. M. See Borukhov, V. T., 85h:93027
- Lasiecka, I. (with Triggiani, R.) Stabilization and structural assignment of Dirichlet boundary feedback parabolic equations. 85i:93028
- Levkov, S. P. Stability of a closed system containing an object with distributed parameters of the hyperbolic type. 85k:93058
- Mironov, A. V. Application of the majorant test for continuous dependence of a state on control to the investigation of a boundary value problem. (Russian) 85g:49007
- Mousavi-Khalkhali, S. A. See Banks, S. P., 85b:49049
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- Stavroulakis, P. See Tsafestas, S. G., 85a:93004
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- Tröltzsch, F. On some parabolic boundary control problems with constraints on the control and functional-constraints on the state. (German and Russian summaries) 85j:49004
- Tsafestas, S. G. (with Stavroulakis, P.) Recent advances in the study of distributed parameter systems. 85a:93004
- Weck, N. More states reachable by boundary control of the heat equation. 85k:93016

### 93C22 Systems governed by integral equations

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- Grachev, N. I. Hysteron in a space of functions of bounded variation. (Russian) 85h:93022
- Lipatov, A. V. Stability with a given degree for some classes of time-dependent systems. (Russian) 85k:93059

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- de Figueiredo, Rui J. P. A generalized Fock space framework for nonlinear system and signal analysis. 85f:93035a

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- Girko, V. L. See Vinogradskaya, A. V., 85f:93036
- Pandolfi, L. A state space approach to control systems with delayed controls. 85d:93029
- Topusu, E. On the characteristic function of a linear discrete time system. (Romanian summary) 85h:93040
- Vinogradskaya, A. V. (with Girko, V. L.) Spectrum control in systems described by linear equations in Hilbert spaces. 85f:93036

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- Flandoli, Franco. Global existence for a Riccati equation arising in a boundary control problem for distributed parameters. 85d:49006
- Green, William L. Canonical forms and stabilizability for single-input systems defined over a commutative normed algebra. 85m:93033
- Marinich, A. P.  $\epsilon$ -controllability of linear systems in a Banach space and moment inequalities. (Russian) 85i:93004
- Nguyễn Khoa So'n. Linear systems with state constraints in Banach spaces. 85j:49012
- You, Yun Cheng. Optimal control for linear system with quadratic indefinite criterion on Hilbert spaces. 85c:49006

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- Farhi, Elza M. Runge-Kutta schemes applied to linear-quadratic optimal control problems. (Bulgarian summary) (See 85e:90015)
- Kleptayn, A. F. Some properties of the von Mises operator. (Russian) 85h:93041
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- Kochura, A. E. See Veita, V. L.; et al., 85i:70041
- Kolovskii, M. Z. See Veita, V. L.; et al., 85i:70041
- Miller, Richard K. See Skar, S. J., 85h:34085
- Rosen, I. Gary. Discrete approximation methods for parameter identification in delay systems. 85a:93059
- Skar, S. J. (with Miller, Richard K.) On the existence of self-excited oscillations in systems with discontinuous elements. 85h:34085
- Tadmor, Gilead. Functional-differential equations of retarded and neutral type: analytic solutions and piecewise continuous controls. 85f:34143
- Ushio, Toshimitsu (with Hiral, Kazumasa). Bifurcations and chaos in sampled-data systems with nonlinear elements of  $C^1$  class. 85f:58091
- Veita, V. L. (with Kolovskii, M. Z.; Kochura, A. E.) ★ Динамика управляемых машинных агрегатов. (Russian) [The dynamics of controllable machine aggregates] 85i:70041

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- Billings, S. A. See El-Ghezawi, O. M. E.; et al., 85a:93088
- El-Ghezawi, O. M. E. (with Zinober, A. S. I.; Billings, S. A.) Analysis and design of variable structure systems using a geometric approach. 85a:93068
- Faro, A. (with Gallo, A.) On the order determination of linear systems. (Russian summary) 85i:93022
- Gallo, A. See Faro, A., 85i:93022
- Gibson, J. A. (with Hamilton-Jenkins, M. A.) Errata: "Unconstrained quasicontinuous representation of multivariable discrete systems" [Internat. J. Systems Sci. 13 (1982), no. 7, 741-756; MR 84g:93047]. 85f:93037
- Hamilton-Jenkins, M. A. See Gibson, J. A., 85f:93037
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- Inouye, Yujiro. Approximation of multivariable linear systems with impulse response and autocorrelation sequences. 85c:93057
- Kučera, Vladimír (with Sebek, M.) On deadbeat controllers. 85f:93038
- MacFarlane, A. G. J. (with Hung, Y. S.) Analytic properties of the singular values of a rational matrix. 85c:93058
- Mees, A. I. Describing functions: ten years on. 85j:93035
- Petkovski, Djordjija. Robustness of control systems subject to modelling uncertainties. (French summary) (Not in MR)
- Ramachandran, Venkat. See Reddy, Harnatha C.; et al., (85m:93003)
- Reddy, Harnatha C. (with Ramachandran, Venkat; Swamy, M. N. S.) New results in sum separability of multivariable network functions. (See 85m:93003)
- Sebek, M. See Kučera, Vladimír, 85f:93038

- Singh, Sahjendra N. Functional reproducibility in nonlinear systems using dynamic compensation. 85e:93027
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- Zinober, A. S. I. See El-Ghezawi, O. M. E.; et al., 85a:93088

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- El-Ghezawi, O. M. E. (with Zinober, A. S. I.; Owens, D. H.; Billings, S. A.) Computation of the zeros and zero directions of linear multivariable systems. 85a:93070
- El Singaby, M. See Sebakh, O. A.; et al., 85a:93076
- Fahmy, Mahmoud M. (with O'Reilly, J.) Eigenstructure assignment in linear multivariable systems—a parametric solution. 85e:93020
- Gevers, Michel (with Wertz, Vincent) Uniquely identifiable state-space and ARMA parametrizations for multivariable linear systems. 85e:93048
- Grigor'ev, V. V. (with Korov'yakov, A. N.) Analysis of processes in multivariable discrete systems based on Lyapunov vector functions. 85k:93036
- Korov'yakov, A. N. See Grigor'ev, V. V., 85k:93036
- Mertalos, B. G. Pole assignment of two-dimensional systems for separable characteristic equations. 85c:93046
- Nijmeijer, Henk. Invertibility of affine nonlinear control systems: a geometric approach. 85d:93011
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- Owens, D. H. See El-Ghezawi, O. M. E.; et al., 85a:93070
- Paraskevopoulos, P. N. (with Christodoulou, M. A.; Tsakiris, M. A.) Eigenvalue-eigenvector sensitivity analysis of linear time-invariant singular systems. 85c:93050
- Sebakh, O. A. (with El Singaby, M.; El Arabawy, I. F.) An iterative algorithm for computing the invariant zeros of large scale systems as eigenvalues. 85a:93076
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- Vidyasagar, M. The graph metric for unstable plants and robustness estimates for feedback stability. 85e:93037
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### 93C40 Adaptive

- Ambrosino, G. (with Celentano, G.; Garofalo, F.) Adaptive model following control of plants with nonlinearities of known form. (Not in MR)
- Bakan, G. M. (with Volosov, V. V.; Sal'nikov, N. N.) Adaptive control of linear static plants based on a model with unknown parameters. 85m:93024
- Barabanov, A. E. Use of the method of least squares for designing an adaptive optimal control for a linear dynamic plant. 85j:93036
- Caines, P. E. Stochastic adaptive control: randomly varying parameters and continually disturbed controls. (See 85c:93003)
- Celentano, G. See Ambrosino, G.; et al., (Not in MR)
- Evans, Robin J. See Xie, Xian Ya, 85k:93045 and (Not in MR)
- Fujii, Seizo (with Mizuno, Naoki) Adaptive control of dead-time processes. (Japanese) (Not in MR)
- Garofalo, F. See Ambrosino, G.; et al., (Not in MR)
- Kobayashi, Toshihiro. A digital adaptive control law for a parabolic distributed parameter system. 85d:93030
- Kumar, Rajendra (with Moore, J. B.) Minimum variance control harnessed for non-minimum-phase plants. (See 85c:93003)
- Kung, Min Chio (with Womack, Baxter F.) Discrete time adaptive control of linear systems with preload nonlinearity. (Not in MR)
- Lozano Leal, R. Adaptive control with forgetting factor. (See 85c:93003)
- Mareels, I. A simple self-tuning controller for stably invertible systems. 85a:93089
- Mizuno, Naoki. See Fujii, Seizo, (Not in MR)
- Moore, J. B. See Kumar, Rajendra, (85c:93003)
- Pechuk, D. V. Synthesis of simple algorithms for adaptive control. 85k:93043
- Praly, Laurent. Towards a globally stable direct adaptive control scheme for not necessarily minimum phase systems. (Not in MR)
- Sal'nikov, N. N. See Bakan, G. M.; et al., 85m:93024
- de la Sen, Manuel. A method for improving the adaptation transient using adaptive sampling. 85m:93025
- Shorikov, A. F. A nonlinear multistep problem of control and observation. (Russian) 85k:93044
- Toivonen, H. T. Multivariable adaptive control. 85f:93039
- Tsaypin, Ya. Z. The theory of adaptive and learning systems. (See 85k:93002)
- Volosov, V. V. See Bakan, G. M.; et al., 85m:93024
- Womack, Baxter F. See Kung, Min Chio, (Not in MR)
- Xie, Xian Ya (with Evans, Robin J.) Discrete-time adaptive control for deterministic time-varying systems. (Not in MR)
- (with Evans, Robin J.) Adaptive control of discrete-time time-varying systems with unknown deterministic disturbances. 85k:93045

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- Anderson, Brian D. O. Behaviour of the output error identification algorithm for small stepsize gains. 85d:93020
- Bitmead, Robert R. Convergence properties of LMS adaptive estimators with unbounded dependent inputs. 85e:93040
- Czogala, Ernest (with Pedrycz, W.) Identification and control problems in fuzzy systems. 85j:93018
- Goldschmidt, Lars. See Hallager, Louis; et al., (Not in MR)
- Gupta, Madan M. See Minamide, N.; et al., 85a:93030



- Hallager, Louis (with Goldschmidt, Lars; Jørgensen, Sten Bay) Multivariable adaptive identification and control of a distributed chemical reactor. (Not in MR)
- Iheda, Masao See Yoshikawa, Tetsuo, 85d:93006
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- Nishimura, Kiminobu Security of block ciphers. (Not in MR)
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- Dyachkov, A. G. (with Rykov, V. V.) Bounds on the length of disjunctive codes. 85k:94033
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- Kobayashi, Hideo (with Yanagidaira, Hidetaka; Shintani, Sotokichi; Kawai, Kazuo) Application of Wagner coding method to multi-DPSK system. 85j:94013
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- Lancellotti, P. (with Pellegrino, C.) An equidistant extension of linear variable order codes. (Italian. English summary) 85m:94038
- Lebedev, S. A. (with Sirotkina, E. N.) A general approach to the construction of arbitrary binary codes with a given minimal distance. (Russian) 85h:94027
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- Aldinyan, A. K. Some properties of MDR codes. (Russian. Armenian summary) 85k:94042
- Assmus, Edward F., Jr. The binary code arising from a 2-design with a nice collection of ovals. 85c:05021
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- Vlăduț, S. G. See Tafasman, M. A.; et al., 85i:11108
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- Yang, Hong See Yuan, Yi Rang; et al., (Not in MR)
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1980

MATHEMATICS

SUBJECT

CLASSIFICATION

(1985 Revision)

Compiled in the Editorial Offices of MATHEMATICAL REVIEWS and ZENTRALBLATT FÜR MATHEMATIK

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# 1980 MATHEMATICS SUBJECT CLASSIFICATION (1985)

## 1980 Mathematics Subject Classification

This is largely a reprinting of the 1985 version of the 1980 Mathematics Subject Classification; it takes effect with the January 1986 issue of MR. The changes made since the last printing (in the MR Annual Index for 1984) can be summarized as follows.

No entries have been deleted, and no new primary entries were introduced. The following items are new, but (for technical reasons) are to be used only as secondary classifications: 14H50, 20M17, 20M18, 53C57, 62M30, 70K25, and the whole of 19-XX (*K-Theory*). In some other entries corrections in the description were carried out, and cross-references were added in several places (mainly due to the appearance of 19-XX).

A conversion table from the (more detailed) classification of *Reviews in K-theory*, to 19-XX has been prepared and is available from the editorial office of MR (as are the other three conversion tables, involving 11-XX and 68-XX, which were announced in the printing of the classification scheme in the MR Annual Index for 1984). These tables will also be included with reprints of the complete classification.

## Instructions for using the 1980 Mathematics Subject Classification

These instructions apply uniformly to all fields listed. The main purpose of the classification is to help readers to find the items of present or potential interest to them as readily as possible—in MR, in Zbl, or anywhere else where this classification system is used. The review of a paper or book should be printed in the section where it will receive the broadest attention from all readers possibly interested in it—these include both people working in that area and people who are familiar with that area and apply its results and methods elsewhere (inside or outside of mathematics). It will be extremely useful for both readers and classifiers to familiarize themselves with the entire classification system and thus to become aware of all the classifications of possible interest to them.

Every paper or book reviewed in MR receives precisely one "primary" classification number; it is simply the number of the section in which the review of the item will be printed. This section should be the one that covers the principal contribution. When a paper contains several principal contributions in different areas, the primary classification should cover the "most important" among them. A paper or book may receive one or several "secondary" classification numbers (or "cross-references"), to cover any remaining principal contributions, ancillary results, motivation or origin of the problems discussed, intended or potential field of application, or other significant aspects worthy of notice.

The "primary" principal contribution is meant to be the one includ-

ing the most important part of the work actually done in the paper. For example, a paper whose main overall content is the solution of a problem in graph theory, which arose in computer science and whose solution is (perhaps) at present only of interest to computer scientists, belongs primarily in 05C with a cross-reference in 68; conversely, papers whose overall content lies mainly in computer science should receive a primary classification in 68, even if they make heavy use of graph theory and prove several new graph-theoretic results along the way.

For any paper or book with its primary classification in (i.e., its review printed in) an "applied" section (68 through 94), it is recommended that a cross-reference in some "pure" mathematics section(s) (00 through 65) be given whenever that is appropriate. Do not use 00A89 as a primary classification.

There are two types of cross-references given after many classifications in the list. The first type is of the form "(For A, see X)"; if this appears in section Y, it means that for contributions described by A one should usually assign the classification X, not Y. The other type of cross-reference merely points out related classifications; it is of the form "[See also...]", "[See mainly...]", etc., and the classifications listed in the brackets may, but need not, be added to the classification of a paper, or they may be used in place of the classification where the cross-reference is given. The classifier will have to judge which classification is the most appropriate for the paper at hand.

## DISCONTINUED numbers from the 1980 Mathematics Subject Classification

Discontinued number	Date discontinued	Replacement
10-XX	1985 (1984 annual index)	now 11-XX
12A,B,C	1985 (1984 annual index)	now 11R,S,T
44A50	1980 (1979 annual index)	now 44A55 (see 44A60 for moment problems)
68A-K	1985 (1984 annual index)	now 68M-U
76A60	1984 (1983 annual index)	now 76-08
78A57	1982 (1981 annual index)	now 78A97
80A35	1985 (1984 annual index)	now 80A97
81E10	1985 (1984 annual index)	split into 81E08, 81E13
81H05	1982 (1981 annual index)	split into 81Hxx, 81H10, 81H20, 81H99
82A77	1985 (1984 annual index)	now 82A97
90C42	1980 (1979 annual index)	absorbed into 90C15
90C45, 90C47	1980 (1979 annual index)	absorbed into 90C40

## 00-XX GENERAL

- 00-01 Elementary exposition; textbooks
- 00-02 Advanced exposition (research surveys, monographs, etc.)
- 00A05 General mathematics
- 00A06 Mathematics for nonmathematicians (engineering, social sciences, etc.)
- 00A07 Problem books
- 00A08 Mathematical recreation
- 00A10 Collections of papers (miscellaneous content)
- 00A11 Proceedings of conferences of general interest
- 00A12 Translation volumes, reprints, etc. [See also 01A75.]
- 00A15 General bibliographies
- 00A20 Dictionaries and other general reference works

- 00A22 Formulas
- 00A25 Methodology and philosophy of mathematics
- 00A69 General applied mathematics [For cross-reference to reviews printed in Sections 70 through 86, use 00A89.]
- 00A71 Theory of mathematical modeling
- 00A73 Dimensional analysis
- 00A89 Physics (to be used in cross-references to reviews printed in Sections 70 through 86, only when no other numbers from Sections 00 through 65 are suitable)
- 00A99 Miscellaneous topics

## 01-XX HISTORY AND BIOGRAPHY [See also the classification number -03 in the other sections.]

- 01-00 Handbooks, dictionaries, and other reference works

- 01-01 Elementary exposition; textbooks  
 01-02 Advanced exposition (research surveys, monographs, etc.)  
 01-06 Proceedings, conferences, etc.  
 01A05 General histories, source books  
 01A10 Primitive, Paleolithic, Neolithic  
 01A12 Native American (i.e. Aztec, Inca, Maya, etc.)  
 01A15 Pre-Greek, Egyptian  
 01A17 Babylonian  
 01A20 Greek, Roman  
 01A25 China  
 01A27 Japan  
 01A29 Southeast Asia  
 01A30 Islam (Medieval)  
 01A32 India  
 01A35 Medieval  
 01A40 15th and 16th centuries, Renaissance  
 01A45 17th century  
 01A50 18th century  
 01A55 19th century  
 01A60 20th century  
 01A65 Contemporary  
 01A70 Biographies, obituaries, personalia  
 01A72 Schools of mathematics  
 01A73 Universities  
 01A74 Other institutions and academies  
 01A75 Collected or selected works; reprintings or translations of classics  
 01A80 Sociology (and profession) of mathematics  
 01A99 Miscellaneous topics
- 03-XX MATHEMATICAL LOGIC AND FOUNDATIONS**  
 03-00 Handbooks, dictionaries, and other reference works  
 03-01 Elementary exposition; textbooks  
 03-02 Advanced exposition (research surveys, monographs, etc.)  
 03-03 Historical (must also be assigned at least one classification number from Section 01)  
 03-04 Explicit machine computation and programs (not the theory of computation or programming)  
 03-06 Proceedings, conferences, etc.
- 03A05 Philosophical and critical**  
**03Bxx General logic**  
 03B05 Classical propositional logic  
 03B10 Pure first-order logic (including many-sorted logic)  
 03B15 Higher-order logic and type-theory  
 03B20 Subsystems of classical logic (including intuitionistic logic)  
 03B25 Decidability of theories and sets of sentences  
 03B30 Foundations and axiomatizations of classical theories  
 03B35 Mechanization of proofs and logical operations [See also 68T15.]  
 03B40 Combinatory logic and  $\lambda$ -calculus  
 03B45 Modal and tense logic, entailment, etc.  
 03B48 Probability and inductive logic  
 03B50 Many-valued logic  
 03B52 Fuzzy logic [See also 94D05.]  
 03B55 Intermediate logics  
 03B60 Other nonclassical logic  
 03B65 Logic of natural languages [See also 68Sxx.]  
 03B70 Logic of programming [See also 68N05, 68Q55, 68Q60, 68S10.]  
 03B99 None of the above, but in this section
- 03Cxx Model theory**  
 03C05 Equational classes, universal algebra [See also 08Axx.]  
 03C07 Basic properties of first-order languages and structures.  
 03C10 Quantifier elimination and related topics  
 03C13 Finite models  
 03C15 Denumerable models  
 03C20 Ultraproducts and related constructions  
 03C25 Model-theoretic forcing  
 03C30 Other model constructions  
 03C35 Categoricity and completeness of theories  
 03C40 Interpolation and preservation theorems; definability  
 03C45 Stability and related concepts  
 03C50 Models with special properties (saturated, rigid, etc.)  
 03C52 Properties of classes of models  
 03C55 Set-theoretic model theory  
 03C57 Recursion-theoretic model theory [See also 03D45.]  
 03C60 Model-theoretic algebra [See also 08C10.]  
 03C62 Models of arithmetic and set theory [See also 03Hxx.]  
 03C65 Models of other specific theories  
 03C68 Other classical first-order model theory  
 03C70 Logic on admissible sets  
 03C75 Other infinitary logic  
 03C80 Logic with extra quantifiers and operators [See also 03B45.]  
 03C85 Second- and higher-order model theory  
 03C90 Nonclassical models (Boolean-valued, sheaf, etc.)  
 03C95 Abstract model theory  
 03C99 None of the above, but in this section
- 03Dxx Recursion theory**  
 03D03 Thue and Post systems, etc.  
 03D05 Automata and formal grammars in connection with logical questions [See also 18B20, 68Qxx.]  
 03D10 Turing machines and related notions [See also 68Q05.]  
 03D15 Complexity of computation  
 03D20 Recursive functions and relations, subrecursive hierarchies  
 03D25 Recursively enumerable sets and degrees  
 03D30 Degrees and reducibilities  
 03D35 Undecidability and degrees of sets of sentences  
 03D40 Word problems, etc. [See also 06B25, 08A50, 20F10.]  
 03D45 Theory of numerations, effectively presented structures [See also 03C57.]  
 03D50 Recursive equivalence types of sets and structures, isols  
 03D55 Hierarchies  
 03D60 Recursion theory on ordinals, admissible sets, etc.  
 03D65 Higher-type and set recursion theory  
 03D70 Inductive definability  
 03D75 Abstract and axiomatic recursion theory  
 03D80 Applications  
 03D99 None of the above, but in this section
- 03Exx Set theory [See also 04-XX.]**  
 03E05 Combinatorial set theory  
 03E10 Ordinal and cardinal numbers  
 03E15 Descriptive set theory  
 03E20 Other classical set theory  
 03E25 Axiom of choice and related propositions  
 03E30 Axiomatics of classical set theory and its fragments  
 03E35 Consistency and independence results  
 03E40 Other aspects of forcing and Boolean-valued models  
 03E45 Constructibility, ordinal definability, and related notions  
 03E47 Other notions of set-theoretic definability  
 03E50 Continuum hypothesis and Martin's axiom [See also 54A25.]  
 03E55 Large cardinals  
 03E60 Determinacy and related principles which contradict the axiom of choice  
 03E65 Other hypotheses and axioms  
 03E70 Nonclassical and second-order set theories  
 03E72 Fuzzy sets [See also 54A40, 94D05.]  
 03E75 Applications  
 03E99 None of the above, but in this section
- 03Fxx Proof theory and constructive mathematics**  
 03F05 Cut-elimination and normal-form theorems  
 03F07 Structure of proofs  
 03F10 Functionals in proof theory  
 03F15 Recursive ordinals and ordinal notations  
 03F20 Complexity of proofs  
 03F25 Relative consistency and interpretations



- 03F30 First-order arithmetic and fragments  
 03F35 Second- and higher-order arithmetic and fragments  
 [See also 03E30, 03E70.]  
 03F40 Gödel numberings in proof theory  
 03F50 Metamathematics of constructive systems  
 03F55 Intuitionistic mathematics  
 03F60 Recursive analysis  
 03F65 Other constructive mathematics [See also 46R05.]  
 03F99 None of the above, but in this section
- 03Gxx Algebraic logic**  
 03G05 Boolean algebras [See also 06Exx.]  
 03G10 Lattices and related structures [See also 06Bxx.]  
 03G12 Quantum logic [See also 81B10.]  
 03G15 Cylindric and polyadic algebras; relation algebras  
 03G20 Lukasiewicz and Post algebras  
 03G25 Other algebras related to logic  
 03G30 Categorical logic, topoi [See also 18B25.]  
 03G99 None of the above, but in this section
- 03Hxx Nonstandard models** [See also 03C62.]  
 03H05 Infinitesimal analysis in pure mathematics  
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 03H10 Other applications of infinitesimal analysis  
 03H15 Nonstandard models of arithmetic [See also 11U10,  
 12L15, 13L05.]  
 03H20 Other nonstandard models [See also 54J05.]  
 03H99 None of the above, but in this section
- 04-XX SET THEORY**  
 04-00 Handbooks, dictionaries, and other reference works  
 04-01 Elementary exposition; textbooks  
 04-02 Advanced exposition (research surveys,  
 monographs, etc.)  
 04-03 Historical (must also be assigned at least one  
 classification number from Section 01)  
 04-04 Explicit machine computation and programs  
 (not the theory of computation or programming)  
 04-06 Proceedings, conferences, etc.  
 04A05 Relations, functions [See also 08A02.]  
 04A10 Transfinite numbers  
 04A15 Descriptive set theory; Borel classifications, Suslin  
 schemes, etc. [See also 03E15, 28A05, 54H05.]  
 04A20 Combinatorial [See also 05A05.]; filters  
 04A25 Axiom of choice and related propositions (Zorn's  
 lemma, etc.) [See also 03E25.]  
 04A30 Continuum hypothesis, generalized continuum  
 hypothesis [See also 03E50, 54A25.]  
 04A99 Miscellaneous topics
- 05-XX COMBINATORICS** {For finite fields, see 11Txx.}  
 05-00 Handbooks, dictionaries, and other reference works  
 05-01 Elementary exposition; textbooks  
 05-02 Advanced exposition (research surveys,  
 monographs, etc.)  
 05-03 Historical (must also be assigned at least one  
 classification number from Section 01)  
 05-04 Explicit machine computation and programs  
 (not the theory of computation or programming)  
 05-06 Proceedings, conferences, etc.
- 05Axx Classical combinatorial problems**  
 05A05 Combinatorial choice problems (subsets,  
 representatives, permutations)  
 05A10 Factorials, binomial coefficients, combinatorial  
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 05A15 Combinatorial enumeration problems, generating  
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 05A17 Partitions [See also 11P57, 11P65.]  
 05A19 Combinatorial identities  
 05A20 Combinatorial inequalities  
 05A30  $q$ -calculus and related topics [See also 33-XX.]  
 05A40 Umbral calculus  
 05A99 None of the above, but in this section
- 05Bxx Designs and configurations** {For applications of  
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 05B05 Block designs [See also 51E05, 62K10.]  
 05B07 Steiner triple systems  
 05B10 Difference sets (number-theoretic, group-theoretic, etc.)  
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 05B15 Orthogonal arrays, Latin squares, Room squares  
 05B20 Matrices (incidence, Hadamard, etc.)  
 05B25 Finite geometries [See also 51D20, 51Exx.]  
 05B30 Other designs, configurations [See also 51E30.]  
 05B35 Matroids, geometric lattices  
 05B40 Packing and covering [See also 11H31, 52A45.]  
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 05B50 Polyominoes  
 05B99 None of the above, but in this section
- 05Cxx Graph theory** {For applications of graphs, see  
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 05C80 Random graphs  
 05C99 None of the above, but in this section
- 06-XX ORDER, LATTICES, ORDERED ALGEBRAIC  
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 06-00 Handbooks, dictionaries, and other reference works  
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 (not the theory of computation or programming)  
 06-06 Proceedings, conferences, etc.
- 06Axx Ordered sets**  
 06A05 Total order  
 06A10 Partial order  
 06A12 Semilattices [See also 20M10.]  
 06A15 Galois correspondences, closure operators  
 06A23 Complete lattices, completions  
 06A99 None of the above, but in this section
- 06Bxx Lattices** [See also 03G10.]  
 06B05 Structure theory  
 06B10 Ideals, congruence relations  
 06B15 Representation theory  
 06B20 Varieties of lattices  
 06B25 Free lattices, projective lattices, word problems  
 [See also 03D40, 08A50, 20F10.]  
 06B30 Topological lattices, order topologies [See also 06F30,  
 54F05, 54H12.]  
 06B35 Continuous lattices, generalizations, applications  
 [See also 06B30, 06D10, 06F30, 18B35, 22A26, 68N10.]  
 06B99 None of the above, but in this section
- 06Cxx Modular lattices, complemented lattices**  
 06C05 Modular lattices, Desarguesian lattices  
 06C10 Semimodular lattices, geometric lattices  
 06C15 Complemented lattices, orthocomplemented lattices

- 06C20 Complemented modular lattices, continuous geometries
- 06C99 None of the above, but in this section
- 06Dxx Distributive lattices**
- 06D05 Structure and representation theory
- 06D10 Complete distributivity
- 06D15 Pseudocomplemented lattices
- 06D20 Heyting algebras [See also 03Gxx.]
- 06D25 Post algebras [See also 03G20.]
- 06D30 De Morgan algebras, Lukasiewicz algebras [See also 03G20.]
- 06D99 None of the above, but in this section
- 06Exx Boolean algebras [See also 03G05.]**
- 06E05 Structure theory
- 06E10 Chain conditions, complete algebras
- 06E15 Topological representation
- 06E20 Boolean rings [See also 16A30, 16A32.]
- 06E30 Boolean functions
- 06E99 None of the above, but in this section
- 06Fxx Ordered structures [See also 22A26, 54F05.]**
- 06F05 Ordered semigroups [See also 20Mxx.]
- 06F10 Noether lattices
- 06F15 Ordered groups [See also 20F60.]
- 06F20 Ordered abelian groups, ordered linear spaces [See also 46A40.]
- 06F25 Ordered rings, algebras, modules {For ordered fields, see 12J15; see also 13J25, 16A86.}
- 06F30 Topological lattices, order topologies [See also 06B30, 54F05, 54H12.]
- 06F99 None of the above, but in this section
- 08-XX GENERAL MATHEMATICAL SYSTEMS**
- 08-00 Handbooks, dictionaries, and other reference works
- 08-01 Elementary exposition; textbooks
- 08-02 Advanced exposition (research surveys, monographs, etc.)
- 08-03 Historical (must also be assigned at least one classification number from Section 01)
- 08-04 Explicit machine computation and programs (not the theory of computation or programming)
- 08-06 Proceedings, conferences, etc.
- 08Axx Universal algebra [See also 03C05.]**
- 08A02 Relational systems, laws of composition
- 08A05 Structure theory
- 08A30 Subalgebras, congruence relations
- 08A35 Automorphisms, endomorphisms
- 08A40 Operations, polynomials, primal algebras
- 08A45 Equational compactness
- 08A50 Word problems [See also 03D40, 20F10.]
- 08A55 Partial algebras
- 08A60 Unary algebras
- 08A65 Infinitary algebras
- 08A99 None of the above, but in this section
- 08Bxx Varieties**
- 08B05 Equational logic, Mal'cev (Mal'tsev) conditions
- 08B10 Congruence modularity, congruence distributivity
- 08B15 Lattices of varieties
- 08B20 Free algebras
- 08B25 Products, amalgamated products
- 08B30 Injectives, projectives
- 08B99 None of the above, but in this section
- 08Cxx Classes of algebras**
- 08C05 Categories of algebras [See also 18C05.]
- 08C10 Axiomatic model classes [See also 03Cxx, in particular 03C60.]
- 08C15 Quasivarieties
- 08C99 None of the above, but in this section

**11-XX NUMBER THEORY**

- 11-00 Handbooks, dictionaries, and other reference works
- 11-01 Elementary exposition; textbooks
- 11-02 Advanced exposition (research surveys, monographs, etc.)
- 11-03 Historical (must also be assigned at least one classification number from Section 01)
- 11-04 Explicit machine computation and programs (not the theory of computation or programming)
- 11-06 Proceedings, conferences, etc.
- 11Axx Elementary number theory {For analogues in number fields, see 11R04.}**
- 11A05 Multiplicative structure; Euclidean algorithm; greatest common divisors
- 11A07 Congruences; primitive roots; residue systems
- 11A15 Power residues, reciprocity
- 11A25 Arithmetic functions; related numbers; inversion formulas
- 11A41 Primes
- 11A51 Factorization; primality
- 11A55 Continued fractions {For approximation results, see 11J70; see also 11K50, 30B70, 40A15.}
- 11A63 Radix representation; digital problems {For metric results, see 11K16.}
- 11A67 Other representations
- 11A99 None of the above, but in this section
- 11Bxx Sequences and sets**
- 11B05 Density, gaps, topology
- 11B13 Additive bases [See also 05B10.]
- 11B25 Arithmetic progressions [See also 11N13.]
- 11B34 Representation functions
- 11B37 Recurrences
- 11B39 Fibonacci and Lucas numbers and polynomials
- 11B50 Sequences (mod  $m$ )
- 11B57 Farey sequences; the sequences  $\{1^k, 2^k, \dots\}$
- 11B65 Binomial coefficients; factorials;  $q$ -identities
- 11B68 Bernoulli and Euler numbers and polynomials
- 11B73 Bell and Stirling numbers
- 11B75 Other combinatorial number theory
- 11B83 Other special sequences and polynomials
- 11B99 None of the above, but in this section
- 11Cxx Polynomials and matrices**
- 11C08 Polynomials [See also 13F20.]
- 11C20 Matrices, determinants [See also 15A36.]
- 11C99 None of the above, but in this section
- 11Dxx Diophantine equations [See also 14Gxx.]**
- 11D04 Linear equations
- 11D09 Quadratic and bilinear equations
- 11D25 Cubic and quartic equations
- 11D41 Higher degree equations; Fermat's equation
- 11D57 Multiplicative and norm form equations
- 11D61 Exponential equations
- 11D68 Rational numbers as sums of fractions
- 11D72 Equations in many variables [See also 11P55.]
- 11D75 Diophantine inequalities [See also 11J25.]
- 11D79 Congruences in many variables
- 11D85 Representation problems [See also 11P55.]
- 11D88  $p$ -adic and power series fields
- 11D99 None of the above, but in this section
- 11Exx Forms and linear algebraic groups [See also 19Gxx.] {For quadratic forms in linear algebra, see 15A63.}**
- 11E04 Quadratic forms over general fields
- 11E08 Quadratic forms over local rings and fields
- 11E10 Forms over real fields
- 11E12 Quadratic forms over global rings and fields
- 11E16 General binary quadratic forms
- 11E20 General ternary and quaternary quadratic forms
- 11E25 Sums of squares; other particular quadratic forms

- 11E32 Reduction theory of quadratic forms  
[See mainly 11H55.]
- 11E36 Distribution of lattice points on quadrics  
[See mainly 11P21.]
- 11E39 Bilinear and Hermitian forms
- 11E41 Class numbers of quadratic and Hermitian forms
- 11E45 Analytic theory (Epstein zeta functions; relations with automorphic forms and functions)
- 11E57 Classical groups [See also 14Lxx, 20Gxx.]
- 11E70  $K$ -theory of quadratic and Hermitian forms
- 11E72 Galois cohomology of linear algebraic groups  
[See also 20G10.]
- 11E76 Forms of degree higher than two
- 11E81 Algebraic theory of quadratic forms; Witt groups and rings [See also 19G12, 19G24.]
- 11E88 Quadratic spaces; Clifford algebras [See also 15A63, 15A66.]
- 11E92 Integer matrices [See also 15A36.]
- 11E95  $p$ -adic theory
- 11E99 None of the above, but in this section
- 11Fxx Discontinuous groups and automorphic forms**  
[See also 11R39, 11S37, 14Gxx, 14Kxx, 22E50, 22E55, 30F35, 32Nxx; for relations with quadratic forms, see 11E45.]
- 11F03 Modular and automorphic functions
- 11F06 Structure of modular groups and generalizations; arithmetic groups [See also 20H05, 20H10, 22E40.]
- 11F11 Modular forms, one variable
- 11F12 Automorphic forms, one variable
- 11F20 Dedekind eta function, Dedekind sums
- 11F22 Relationship to Lie algebras and finite simple groups
- 11F25 Hecke-Petersson operators, differential operators (1 variable)
- 11F27 Theta series; Weil representation
- 11F30 Fourier coefficients of automorphic forms
- 11F33 Congruences for modular and  $p$ -adic modular forms  
[See also 14G20, 22E50.]
- 11F35 Ramanujan  $\tau$ -function
- 11F37 Forms of half-integer weight; nonholomorphic modular forms
- 11F41 Hilbert and Hilbert-Siegel modular groups and their modular and automorphic forms; Hilbert modular surfaces [See also 14J20.]
- 11F46 Siegel modular groups and their modular and automorphic forms
- 11F55 Other groups and their modular and automorphic forms (several variables)
- 11F66 Dirichlet series and functional equations in connection with modular forms
- 11F67 Special values of automorphic  $L$ -series, periods of modular forms, cohomology, modular symbols
- 11F70 Representation-theoretic methods; automorphic representations over local and global fields
- 11F72 Spectral theory; Selberg trace formula
- 11F75 Cohomology of arithmetic groups
- 11F80 Galois properties
- 11F85  $p$ -adic theory, local fields [See also 14G20, 22E50.]
- 11F99 None of the above, but in this section
- 11Gxx Arithmetic algebraic geometry (Diophantine geometry)** [See also 11Dxx, 14Gxx, 14Kxx.]
- 11G05 Elliptic curves over global fields
- 11G07 Elliptic curves over local fields
- 11G10 Abelian varieties of dimension  $> 1$
- 11G15 Complex multiplication and moduli of abelian varieties  
[See also 14K22.]
- 11G16 Elliptic and modular units
- 11G18 Arithmetic of modular and Shimura varieties
- 11G20 Curves over finite and local fields
- 11G25 Varieties over finite and local fields
- 11G30 Curves of arbitrary genus or genus  $\neq 1$  over global fields
- 11G35 Varieties over global fields
- 11G40  $L$ -functions of varieties over global fields; Birch-Swinnerton-Dyer conjecture
- 11G45 Geometric class field theory [See also 11R37.]
- 11G99 None of the above, but in this section
- 11Hxx Geometry of numbers**
- 11H06 Lattices and convex bodies [See also 11P21.]
- 11H16 Nonconvex bodies
- 11H25 Minkowski-Hlawka theorem; Siegel mean value theorem
- 11H31 Lattice packing and covering [See also 05B40, 52A45.]
- 11H41 Miscellaneous problems
- 11H46 Products of linear forms
- 11H50 Minima of forms
- 11H55 Quadratic forms (reduction theory, extreme forms, etc.)
- 11H60 Mean value and transfer theorems
- 11H99 None of the above, but in this section
- 11Jxx Diophantine approximation, transcendental number theory** [See also 11K60.]
- 11J04 Homogeneous approximation to one number
- 11J06 Markov and Lagrange spectra and generalizations
- 11J13 Simultaneous homogeneous approximation, linear forms
- 11J17 Approximation by numbers from a fixed field
- 11J20 Inhomogeneous linear forms
- 11J25 Diophantine inequalities [See also 11D75.]
- 11J37 Products of  $n$  linear forms in  $n$  variables ( $n \geq 2$ )  
[See mainly 11H46.]
- 11J45 Minima of quadratic forms in more than two variables  
[See mainly 11H50.]
- 11J52 Minima of higher degree forms and other functions  
[See mainly 11H50.]
- 11J54 Small fractional parts of polynomials and generalizations
- 11J61 Approximation in non-Archimedean valuations
- 11J68 Rational approximation to algebraic numbers
- 11J69 Simultaneous rational approximation to algebraic numbers
- 11J70 Continued fractions and generalizations  
[See also 11A55, 11K50.]
- 11J71 Distribution modulo one [See also 11K06.]
- 11J72 Irrationality; linear independence over a field
- 11J81 Transcendence (general theory)
- 11J82 Measures of irrationality and of transcendence
- 11J83 Metric theory
- 11J85 Algebraic independence; Gel'fond's method
- 11J86 Linear forms in logarithms; Baker's method
- 11J87 Applications to Diophantine equations and other arithmetic problems
- 11J89 Transcendence theory of elliptic and abelian functions and algebraic groups
- 11J91 Transcendence theory of other special functions
- 11J99 None of the above, but in this section
- 11Kxx Probabilistic theory: distribution modulo 1; metric theory of algorithms**
- 11K06 General theory of distribution modulo 1  
[See also 11J71.]
- 11K16 Normal numbers, radix expansions, etc.  
[See also 11A63.]
- 11K26 PV-numbers
- 11K31 Other special sequences
- 11K36 Well-distributed sequences and other variations
- 11K38 Irregularities of distribution, discrepancy  
[See also 11Nxx.]
- 11K41 Continuous,  $p$ -adic and abstract analogues
- 11K45 Pseudo-random numbers; Monte Carlo methods
- 11K50 Metric theory of continued fractions [See also 11A55, 11J70.]
- 11K55 Metric theory of other algorithms and expansions; measure and Hausdorff dimension [See also 11N99.]



- 11K60 Diophantine approximation [See also 11Jxx.]
- 11K65 Arithmetic functions [See also 11Nxx.]
- 11K99 None of the above, but in this section
- 11Lxx Exponential sums and character sums**
- 11L03 Trigonometric and exponential sums, general
- 11L05 Gauss and Kloosterman sums; generalizations
- 11L10 Jacobsthal and Brewer sums; other complete character sums
- 11L15 Weyl sums
- 11L20 Sums over primes
- 11L26 Sums over arbitrary intervals
- 11L40 Estimates on exponential sums and character sums
- 11L50 Real trigonometric inequalities
- 11L99 None of the above, but in this section
- 11Mxx Zeta and  $L$ -functions: analytic theory**
- 11M06  $\zeta(s)$  and  $L(s, \chi)$
- 11M20 Real zeros of  $L(s, \chi)$ ; results on  $L(1, \chi)$
- 11M26 Nonreal zeros of  $\zeta(s)$  and  $L(s, \chi)$ ; Riemann and other hypotheses
- 11M35 Hurwitz and Lerch zeta functions
- 11M41 Other Dirichlet series and zeta functions {For local and global ground fields, see 11R42, 11R52, 11S40, 11S45; for algebro-geometric methods, see 14G10; see also 11E45, 11F70, 11F72.}
- 11M45 Tauberian theorems
- 11M51 Turán theory [See mainly 11N30.]
- 11M56 Sieves [See mainly 11N35.]
- 11M99 None of the above, but in this section
- 11Nxx Multiplicative number theory**
- 11N05 Distribution of primes
- 11N13 Primes in progressions [See also 11B25.]
- 11N25 Distribution of integers with specified multiplicative constraints
- 11N30 Turán theory
- 11N32 Primes represented by polynomials; other multiplicative structure of polynomial values
- 11N35 Sieves
- 11N37 Asymptotic results on arithmetic functions
- 11N45 Asymptotic results on counting functions for algebraic and topological structures
- 11N56 Rate of growth of arithmetic functions
- 11N60 Distribution functions associated with additive and positive multiplicative functions
- 11N64 Other results on the distribution of values or the characterization of arithmetic functions
- 11N69 Distribution of integers in special residue classes
- 11N80 Generalized primes and integers
- 11N99 None of the above, but in this section
- 11Pxx Additive number theory; partitions**
- 11P05 Waring's problem and variants, sums of different powers
- 11P16 Additive questions concerning  $r$ -free numbers
- 11P21 Lattice points in specified regions
- 11P32 Goldbach-type theorems
- 11P45 Other additive questions involving primes
- 11P55 Applications of the Hardy-Littlewood method [See also 11D85.]
- 11P57 Partitions: recurrence relations, generating functions, etc.
- 11P65 Partitions: multipartite, and related problems
- 11P68 Partitions: restricted by congruence, inequality or repetition conditions
- 11P72 Partitions: asymptotic, convergent series expansions
- 11P76 Partitions: congruences for partition functions
- 11P80 Partitions: miscellaneous results
- 11P99 None of the above, but in this section
- 11Qxx Other arithmetic-analytic topics**
- 11Q05 Analytic functions
- 11Q10 Differential equations
- 11Q15 Probability theory and ergodic theory
- 11Q20 Fourier analysis, approximation theory; functional analysis
- 11Q25 Non-Archimedean analysis
- 11Q99 None of the above, but in this section
- 11Rxx Algebraic number theory: global fields {For complex multiplication, see 11G15.}**
- 11R04 Algebraic numbers: general
- 11R06  $PV$ -numbers and generalizations; other special algebraic numbers
- 11R09 Polynomials (irreducibility, etc.)
- 11R11 Quadratic extensions
- 11R16 Cubic and quartic extensions
- 11R18 Cyclotomic extensions
- 11R20 Other abelian and metabelian extensions
- 11R21 Other number fields
- 11R23 Infinite algebraic extensions; Iwasawa theory
- 11R27 Units and factorization
- 11R29 Class numbers, class groups, discriminants
- 11R32 Galois theory
- 11R33 Integral representations related to algebraic numbers; Galois module structure of rings of integers [See also 20C10.]
- 11R34 Galois cohomology [See also 12Gxx, 16A16, 19A31.]
- 11R37 Class field theory
- 11R39 Langlands-Weil conjectures, nonabelian class field theory [See also 11Fxx, 22E55.]
- 11R42 Zeta functions and  $L$ -functions of number fields [See also 11M41, 19F27.]
- 11R44 Distribution of prime ideals [See also 11N05.]
- 11R45 Density theorems
- 11R47 Other analytic theory
- 11R52 Quaternion and other division algebras: arithmetic, zeta functions
- 11R54 Other algebras and orders, and their zeta and  $L$ -functions [See also 11S45, 16A18, 16A39.]
- 11R56 Adèle rings and groups
- 11R58 Arithmetic theory of algebraic function fields [See also 14-XX.]
- 11R65 Class groups and Picard groups of orders
- 11R70  $K$ -theory of global fields [See also 19Fxx.]
- 11R80 Totally real and totally positive fields [See also 12J15.]
- 11R99 None of the above, but in this section
- 11Sxx Algebraic number theory: local and  $p$ -adic fields**
- 11S05 Polynomials
- 11S10 Units
- 11S15 Ramification and extension theory
- 11S20 Galois theory
- 11S23 Integral representations
- 11S25 Galois cohomology [See also 12Gxx, 16A16.]
- 11S31 Class field theory;  $p$ -adic formal groups
- 11S37 Langlands-Weil conjectures, nonabelian class field theory [See also 11Fxx, 22E50.]
- 11S40 Zeta functions and  $L$ -functions [See also 11M41, 19F27.]
- 11S45 Algebras and orders, and their zeta functions [See also 11R52, 11R54, 16A18, 16A39.]
- 11S50 Equations
- 11S70  $K$ -theory of local fields
- 11S75 Valuation theory
- 11S80 Other analytic theory (analogues of beta and gamma functions,  $p$ -adic integration, etc.)
- 11S85 Other nonanalytic theory
- 11S99 None of the above, but in this section
- 11Txx Finite fields and commutative rings (number-theoretic aspects)**
- 11T06 Polynomials: irreducibility, factorization, distribution of values
- 11T15 Difference sets; finite geometries
- 11T21 Cyclotomy, exponential sums; Gaussian and character sums

- 11T30 Structure theory
- 11T35 Matrices and determinants
- 11T41 Equations
- 11T55 Polynomial domains over finite fields
- 11T71 Algebraic coding theory; cryptography
- 11T99 None of the above, but in this section
- 11Uxx Connections with logic**
- 11U05 Decidability [See also 03B25.]
- 11U07 Ultraproducts [See also 03C20.]
- 11U09 Model theory
- 11U10 Nonstandard arithmetic [See also 03H15.]
- 11U99 None of the above, but in this section
- 11Yxx Computational number theory [See also 11-04.]**
- 11Y05 Factorization
- 11Y11 Primality
- 11Y16 Algorithms; complexity
- 11Y35 Analytic computations
- 11Y40 Algebraic number theory computations
- 11Y50 Computer solution of Diophantine equations
- 11Y55 Calculation of integer sequences
- 11Y60 Evaluation of constants
- 11Y65 Continued fraction calculations
- 11Y70 Values of arithmetic functions; tables
- 11Y99 None of the above, but in this section
- 11Z50 Miscellaneous applications of number theory**
- 12-XX FIELD THEORY AND POLYNOMIALS**
- 12-00 Handbooks, dictionaries, and other reference works
- 12-01 Elementary exposition; textbooks
- 12-02 Advanced exposition (research surveys, monographs, etc.)
- 12-03 Historical (must also be assigned at least one classification number from Section 01)
- 12-04 Explicit machine computation and programs (not the theory of computation or programming)
- 12-06 Proceedings, conferences, etc.
- 12Dxx Real and complex fields**
- 12D05 Polynomials: factorization
- 12D10 Polynomials: location of zeros (algebraic theorems) {For the analytic theory, see 26C10, 30C15.}
- 12D15 Formally real fields [See also 12J10, 12J15.]
- 12D99 None of the above, but in this section
- 12Exx General field theory**
- 12E05 Polynomials (irreducibility, etc.)
- 12E10 Special polynomials
- 12E12 Equations
- 12E15 Skew fields, division rings [See also 11R52, 11R54, 11S45 16A39.]
- 12E20 Finite fields {For number-theoretic questions, see 11Txx.}
- 12E99 None of the above, but in this section
- 12Fxx Field extensions**
- 12F05 Algebraic extensions
- 12F10 Separable extensions, Galois theory
- 12F15 Inseparable extensions, derivations
- 12F20 Transcendental extensions
- 12F99 None of the above, but in this section
- 12Gxx Homological methods**
- 12G05 Galois cohomology [See also 11R34, 11S25, 13A20, 16A16.]
- 12G10 Cohomological dimension
- 12G99 None of the above, but in this section
- 12Hxx Differential and difference algebra**
- 12H05 Differential algebra [See also 13N05.]
- 12H10 Difference algebra [See also 39Axx.]
- 12H20 Abstract differential equations [See also 34Gxx.]
- 12H25  $p$ -adic differential equations [See also 11S80, 14G20, 34Gxx.]
- 12H99 None of the above, but in this section

- 12Jxx Topological fields**
- 12J05 Normed fields
- 12J10 Valued fields
- 12J15 Ordered fields
- 12J17 Topological semifields
- 12J20 General valuation theory
- 12J25 Non-Archimedean valued fields [See also 26E30, 30G05, 32D25, 46P05.]
- 12J27 Krasner-Tate algebras [See mainly 32E27, also 46P05.]
- 12J99 None of the above, but in this section
- 12Kxx Generalizations**
- 12K05 Near-fields [See also 16A76.]
- 12K10 Semifields [See also 16A78.]
- 12K99 None of the above, but in this section
- 12Lxx Connections with logic**
- 12L05 Decidability
- 12L10 Ultraproducts
- 12L12 Model theory
- 12L15 Nonstandard arithmetic [See also 03H15.]
- 12L99 None of the above, but in this section
- 13-XX COMMUTATIVE RINGS AND ALGEBRAS {For the noncommutative case, see 16-XX.}**
- 13-00 Handbooks, dictionaries, and other reference works
- 13-01 Elementary exposition; textbooks
- 13-02 Advanced exposition (research surveys, monographs, etc.)
- 13-03 Historical (must also be assigned at least one classification number from Section 01)
- 13-04 Explicit machine computation and programs (not the theory of computation or programming)
- 13-06 Proceedings, conferences, etc.
- 13Axx General commutative ring theory**
- 13A05 Divisibility
- 13A10 Radical theory
- 13A15 Ideals
- 13A17 Prime and primary ideals and their generalizations
- 13A18 Valuations and their generalizations
- 13A20 Brauer groups [See also 12Gxx, 16A16.]
- 13A99 None of the above, but in this section
- 13Bxx Ring extensions and related topics**
- 13B02 Extension theory
- 13B05 Galois theory
- 13B10 Automorphisms and derivations
- 13B15 Ramification theory
- 13B20 Integral dependence; integral closure; integrally closed rings, related rings (Japanese, etc.)
- 13B25 Polynomials over commutative rings
- 13B30 Quotients and localization
- 13B35 Completions
- 13B99 None of the above, but in this section
- 13Cxx Theory of modules and ideals**
- 13C05 Structure, classification theorems
- 13C10 Projective and free modules and ideals [See also 18G05.]
- 13C11 Injective and flat modules and ideals [See also 18G05.]
- 13C12 Torsion modules and ideals
- 13C13 Other special types
- 13C15 Dimension theory, depth, related rings (catenary, etc.)
- 13C99 None of the above, but in this section
- 13Dxx Homological methods**
- 13D03 Cohomology of commutative rings and algebras
- 13D05 Homological dimension
- 13D10 Deformations and infinitesimal methods [See also 14D15, 16A58, 32Gxx.]
- 13D15 Grothendieck group,  $K$ -theory [See also 14F15, 18F25, 18F30, 19Axx.]
- 13D25 Complexes [See also 14Mxx.]
- 13D30 Torsion theory [See also 13C12, 16A63, 18E40.]
- 13D99 None of the above, but in this section

- 13Exx Chain conditions, finiteness conditions**
- 13E05 Noetherian rings and modules
  - 13E10 Artinian rings and modules, finite-dimensional algebras
  - 13E15 Rings and modules of finite generation or representation
  - 13E99 None of the above, but in this section
- 13Fxx Arithmetic rings [See also 12-XX.]**
- 13F05 Dedekind and Prüfer rings and their generalizations
  - 13F07 Euclidean rings and generalizations
  - 13F10 Principal ideal rings
  - 13F15 Factorial rings, unique factorization domains
  - 13F20 Polynomial rings [See also 11C08.]
  - 13F25 Formal power series rings
  - 13F30 Discrete valuation rings
  - 13F99 None of the above, but in this section
- 13G05 Integral domains**
- 13Hxx Local rings and semilocal rings**
- 13H05 Regular local rings
  - 13H10 Special types (Macaulay, Gorenstein, etc.)
  - 13H15 Multiplicity theory and related topics
  - 13H99 None of the above, but in this section
- 13Jxx Topological rings [See also 16A80.]**
- 13J05 Power series rings
  - 13J10 Complete rings
  - 13J15 Henselian rings
  - 13J20 Global topological rings
  - 13J25 Ordered rings [See also 06F25, 16A86.]
  - 13J99 None of the above, but in this section
- 13K05 Witt vectors and related rings**
- 13L05 Applications of logic to commutative algebra [See also 03Cxx, 03Hxx.]**
- 13Mxx Finite commutative rings {For number-theoretic aspects, see 11Txx.}**
- 13M05 Structure
  - 13M10 Polynomials
  - 13M99 None of the above, but in this section
- 13N05 Differential algebra [See also 12H05.]**
- 14-XX ALGEBRAIC GEOMETRY**
- 14-00 Handbooks, dictionaries, and other reference works
  - 14-01 Elementary exposition; textbooks
  - 14-02 Advanced exposition (research surveys, monographs, etc.)
  - 14-03 Historical (must also be assigned at least one classification number from Section 01)
  - 14-04 Explicit machine computation and programs (not the theory of computation or programming)
  - 14-06 Proceedings, conferences, etc.
- 14Axx Foundations**
- 14A05 Relevant commutative algebra [See also 13-XX.]
  - 14A10 Varieties
  - 14A15 Schemes
  - 14A20 Generalizations (algebraic spaces, motifs)
  - 14A25 Elementary questions
  - 14A99 None of the above, but in this section
- 14Bxx Local theory [See also 32Bxx.]**
- 14B05 Singularities [See also 14E15, 32B30, 32C40, 58C27.]
  - 14B07 Deformations of singularities [See also 14D15, 32C40, 32G05, 32G11, 32G13.]
  - 14B10 Infinitesimal methods
  - 14B12 Local deformation theory, Artin approximation, etc.
  - 14B15 Local cohomology [See also 32C36.]
  - 14B20 Formal neighborhoods
  - 14B25 Local structure of maps: étale, flat, etc. [See also 13-XX, 14E40.]
  - 14B99 None of the above, but in this section
- 14Cxx Cycles and subschemes**
- 14C05 Parametrization (Chow and Hilbert schemes)
  - 14C10 Equivalence relations
  - 14C15 Rational equivalence rings
  - 14C17 Intersection theory
  - 14C20 Divisors, linear systems
  - 14C21 Webs, nets [See also 53A60.]
  - 14C22 Picard groups
  - 14C25 Zero-cycles
  - 14C30 Transcendental methods, Hodge theory [See also 32J25.]
  - 14C35 Applications of methods of algebraic  $K$ -theory [See also 14F05, 18F25, 19E15.]
  - 14C40 Riemann-Roch theorems [See also 14F12, 19E20, 19L10.]
  - 14C99 None of the above, but in this section
- 14Dxx Families, fibrations**
- 14D05 Structure of families (Picard-Lefschetz, Picard-Fuchs theory, etc.)
  - 14D10 Arithmetic ground fields (finite, local, global)
  - 14D15 Formal methods; deformations [See also 13D10, 14B07, 16A58, 32Gxx.]
  - 14D20 Algebraic moduli problems {For analytic moduli problems, see 32G13.}
  - 14D22 Fine structure of moduli spaces
  - 14D25 Geometric invariants [See also 14L30.]
  - 14D99 None of the above, but in this section
- 14Exx Mappings and correspondences**
- 14E05 Rational maps, birational correspondences
  - 14E07 Structure of Cremona group and generalizations
  - 14E10 General correspondences
  - 14E15 Global theory of singularities, resolution [See also 14B05, 32C45.]
  - 14E20 Coverings, fundamental group
  - 14E22 Ramification problems [See also 11S15.]
  - 14E25 Imbeddings
  - 14E30 Minimal models
  - 14E35 Results in dimension  $\leq 3$
  - 14E40 Local structure of maps: étale, flat, etc. [See also 13-XX, 14B25.]
  - 14E99 None of the above, but in this section
- 14Fxx Cohomology theory [See also 13Dxx.]**
- 14F05 Vector bundles, sheaves, related constructions [See also 18F20, 46M20.]
  - 14F07 Weierstrass points in one and several variables; gap sheaves
  - 14F10 Differentials and other special sheaves
  - 14F12 Riemann-Roch problems [See mainly 14C40, also 32L10, 57R20.]
  - 14F15 Serre cohomology,  $K$ -theory [See also 13D15, 18F25, 19E20.]
  - 14F20 Grothendieck cohomology and topology [See also 18F10.]
  - 14F25 Classical real and complex cohomology
  - 14F30  $p$ -adic cohomology, crystalline cohomology
  - 14F35 Homotopy theory
  - 14F40 de Rham cohomology [See also 14C30, 32C35, 32L10.]
  - 14F45 Topological properties
  - 14F99 None of the above, but in this section
- 14Gxx Special ground fields, arithmetic problems {For complex multiplication, see 11G15, 14K22. For automorphic and modular functions and forms, see also 11Fxx, 14K15.}**
- 14G05 Rationality questions
  - 14G10 Zeta functions and related questions [See also 11R42, 11S40, 19F27.]
  - 14G13 Weil-Tate conjectures [See also 14Cxx.]
  - 14G15 Finite ground fields
  - 14G20  $p$ -adic ground fields (local fields)
  - 14G25 Global ground fields
  - 14G30 Real ground fields [See also 32C05. Must also be assigned at least one other number referring to the specific type of problem considered.]
  - 14G99 None of the above, but in this section



**14Hxx Curves**

- 14H05 Algebraic functions [See also 14K20, 32G20.]
- 14H10 Families, moduli (algebraic)
- 14H15 Families, moduli (analytic) [See also 30F10, 32G15, 32G20.]
- 14H20 Singularities, local rings [See also 13Hxx.]
- 14H25 Arithmetic ground fields [See also 11Dxx, 14Gxx.]
- 14H30 Coverings, fundamental group
- 14H35 Correspondences [See also 14Exx.]
- 14H40 Jacobians [See also 32G20.]
- 14H45 Special curves
- 14H50 Space curves (use only for secondary classification) [See also 14H45.]
- 14H99 None of the above, but in this section

**14Jxx Surfaces and higher-dimensional varieties**

- 14J05 Picard group
- 14J10 Families, moduli, classification: algebraic theory
- 14J15 Moduli, classification: analytic theory [See also 32J15.]
- 14J17 Singularities of surfaces
- 14J20 Arithmetic ground fields [See also 11Dxx, 14Gxx.]
- 14J25 Special surfaces, general
- 14J26 Rational and ruled surfaces
- 14J27 Elliptic surfaces
- 14J28 K3-surfaces and Enriques surfaces
- 14J29 Surfaces of general type
- 14J30 Special 3-folds [See also 14E05.]
- 14J35 Special 4-folds [See also 14E05.]
- 14J40 Special  $n$ -folds
- 14J50 Automorphisms of surfaces and higher-dimensional special varieties
- 14J99 None of the above, but in this section

**14Kxx Abelian varieties and schemes**

- 14K05 Algebraic theory
- 14K07 Elliptic curves, one-dimensional theory
- 14K10 Algebraic moduli, classification
- 14K15 Arithmetic ground fields [See also 11Dxx, 11Fxx, 14Gxx.]
- 14K20 Analytic theory; abelian integrals and differentials
- 14K22 Complex multiplication [See also 11G15.]
- 14K25 Theta functions
- 14K30 Picard schemes, higher Jacobians
- 14K99 None of the above, but in this section

**14Lxx Group schemes {For linear algebraic groups, see 20Gxx. For Lie algebras, see 17B45.}**

- 14L05 Formal groups,  $p$ -divisible groups [See also 17B50.]
- 14L10 Group varieties
- 14L15 Group schemes
- 14L17 Affine algebraic groups, hyperalgebra constructions [See also 17B45, 18D35.]
- 14L20 Finite group schemes
- 14L25 Pro-algebraic group schemes
- 14L30 Group actions on varieties or schemes [See also 14D25.]
- 14L32 Toric varieties, Newton polyhedra
- 14L35 Classical groups (geometric aspects)
- 14L40 Other algebraic groups (geometric aspects)
- 14L99 None of the above, but in this section

**14Mxx Special varieties**

- 14M05 Varieties defined by ring conditions (factorial, Macaulay)
- 14M07 Low-codimension problems [See also 14Cxx.]
- 14M10 Complete intersections
- 14M12 Determinantal varieties
- 14M15 Grassmannians, Schubert varieties [See also 51M35.]
- 14M17 Homogeneous spaces [See also 32M10, 53C30, 57T15.]
- 14M20 Rational varieties
- 14M99 None of the above, but in this section

**14Nxx Classical methods and problems [See also 51-XX.]**

- 14N05 Projective techniques
- 14N10 Enumerative problems
- 14N99 None of the above, but in this section

**15-XX LINEAR AND MULTILINEAR ALGEBRA; MATRIX THEORY (finite and infinite)**

- 15-00 Handbooks, dictionaries, and other reference works
- 15-01 Elementary exposition; textbooks
- 15-02 Advanced exposition (research surveys, monographs, etc.)
- 15-03 Historical (must also be assigned at least one classification number from Section 01)
- 15-04 Explicit machine computation and programs (not the theory of computation or programming)
- 15-06 Proceedings, conferences, etc.
- 15A03 Vector spaces, linear dependence, rank
- 15A04 Linear transformations, semilinear transformations
- 15A06 Linear equations
- 15A09 Matrix inversion, generalized inverses
- 15A12 Conditioning of matrices [See also 65F35.]
- 15A15 Determinants, permanents, other special matrix functions [See also 19B10, 19B14.]
- 15A18 Eigenvalues, singular values, and eigenvectors
- 15A21 Canonical forms, reductions, classification
- 15A22 Matrix pencils
- 15A23 Factorization of matrices
- 15A24 Matrix equations and identities
- 15A27 Commutativity
- 15A30 Algebraic systems of matrices [See also 16A42, 20Gxx, 20Hxx.]
- 15A33 Matrices over special rings (quaternions, finite fields, etc.)
- 15A36 Matrices of integers [See also 11C20.]
- 15A39 Linear inequalities
- 15A42 Inequalities involving eigenvalues and eigenvectors
- 15A45 Miscellaneous inequalities involving matrices
- 15A48 Positive matrices and their generalizations; cones of matrices
- 15A51 Stochastic matrices
- 15A52 Random matrices
- 15A54 Matrices over function rings in one or more variables
- 15A57 Other types of matrices (Hermitian, skew-Hermitian, etc.)
- 15A60 Norms of matrices, numerical range, applications of functional analysis to matrix theory [See also 65F35, 65J05.]
- 15A63 Quadratic and bilinear forms, inner products [See mainly 11Exx.]
- 15A66 Clifford algebras, spinors
- 15A69 Multilinear algebra, tensor products
- 15A72 Vector and tensor algebra, theory of invariants
- 15A75 Exterior algebra, Grassmann algebras
- 15A78 Other algebras built from modules
- 15A90 Applications to physics
- 15A99 Miscellaneous topics

**16-XX ASSOCIATIVE RINGS AND ALGEBRAS {For the commutative case, see 13-XX.}**

- 16-00 Handbooks, dictionaries, and other reference works
- 16-01 Elementary exposition; textbooks
- 16-02 Advanced exposition (research surveys, monographs, etc.)
- 16-03 Historical (must also be assigned at least one classification number from Section 01)
- 16-04 Explicit machine computation and programs (not the theory of computation or programming)
- 16-06 Proceedings, conferences, etc.
- 16A02 Integral domains, unique factorization domains (noncommutative)
- 16A03 Graded algebras, rings and modules
- 16A04 Noncommutative principal ideal rings, rings with a division algorithm
- 16A05 Skew polynomial rings, power series rings
- 16A06 Free algebras, free ideal rings (firs) and their generalizations [See also tensor algebra in 15A72.]

- 16A08 Rings of quotients, noncommutative localization  
 16A10 Noncommutative local rings  
 16A12 Prime and semiprime rings  
 16A14 Noncommutative analogues of Dedekind and Prüfer domains  
 16A15 Other generalizations of commutative rings (For commutativity theorems, see 16A70.)  
 16A16 Separable algebras, Azumaya algebras and their generalizations [See also 12Gxx, 13A20.]  
 16A18 Orders, arithmetic in algebras [See also 11R52, 11R54, 11S45.]  
 16A19 Simple non-Artinian rings  
 16A20 Primitive and semiprimitive rings  
 16A21 Radical theory  
 16A22 Nil, nilpotent and radical rings  
 16A24 Hopf algebras, algebraic theory [See also 57T05.]  
 16A25 Structure of groups of units of rings  
 16A26 Group rings of finite groups [See also 20C05; for semigroup rings, see 20M25.]  
 16A27 Group rings of infinite groups [See also 20C07; for semigroup rings, see 20M25.]  
 16A28 Rings with involution [See also 46Kxx.]  
 16A30 von Neumann regular rings and their generalizations [See also 06Cxx, 06Exx.]  
 16A32 Idempotents in rings [See also 06Exx.]  
 16A33 Noetherian rings  
 16A34 Rings with annihilator conditions, chain conditions (Goldie rings)  
 16A35 Artinian rings  
 16A36 Frobenius algebras, quasi-Frobenius rings and their generalizations  
 16A38 Rings with polynomial identity  
 16A39 Skew fields [See also 12E15.], division rings  
 16A40 Simple and semisimple Artinian rings  
 16A42 Rings of linear transformations, matrix rings, infinite matrix rings [See also 15A30.]  
 16A44 Finite rings [See also 11Txx, 13Mxx.]  
 16A45 Other types of rings and algebras  
 16A46 Finite-dimensional algebras  
 16A48 Structure, classification  
 16A49 Duality theory  
 16A50 Projective and flat modules and generalizations  
 16A51 Perfect, semiperfect rings and modules and their generalizations  
 16A52 Injective modules, self-injective rings and generalizations  
 16A53 Special types of modules  
 16A54 Grothendieck groups of rings,  $K$ -theory of noncommutative rings [See also 18F25, 18F30, 19-XX.]  
 16A55 Dimension theory (Krull, Gabriel)  
 16A56 Extension theory  
 16A58 Deformation theory of rings and algebras [See also 13D10, 14D15, 32Gxx.]  
 16A60 Homological dimension  
 16A61 Cohomology of algebras and rings  
 16A62 Homological methods  
 16A63 Torsion theories [See also 13D30, 18E40.]  
 16A64 Modules and representations  
 16A65 Endomorphism rings  
 16A66 Ideal theory, prime ideals and their generalizations  
 16A68 Lie, Jordan and other nonassociative structures on associative rings  
 16A70 Commutativity theorems  
 16A72 Automorphisms, derivations, other morphisms  
 16A74 Galois theory  
 16A76 Near-rings [See also 12K05.]  
 16A78 Semirings and other generalizations of rings  
 16A80 Topological rings and modules [See also 13Jxx.]  
 16A86 Ordered rings [See also 06F25.]  
 16A89 Equivalence of module categories  
 16A90 Categorical methods and categorical ring theory  
 16A99 Miscellaneous topics
- 17-XX NONASSOCIATIVE RINGS AND ALGEBRAS**  
 17-00 Handbooks, dictionaries, and other reference works  
 17-01 Elementary exposition; textbooks  
 17-02 Advanced exposition (research surveys, monographs, etc.)  
 17-03 Historical (must also be assigned at least one classification number from Section 01)  
 17-04 Explicit machine computation and programs (not the theory of computation or programming)  
 17-06 Proceedings, conferences, etc.  
**17Axx General nonassociative rings**  
 17A01 General theory  
 17A05 Power-associative  
 17A10 Commutative power-associative  
 17A15 Noncommutative Jordan algebras  
 17A20 Flexible algebras  
 17A25 Nodal algebras  
 17A30 Algebras satisfying other identities  
 17A35 Division algebras  
 17A36 Automorphisms, derivatives, other operators  
 17A40 Ternary compositions  
 17A42 Other  $n$ -ary compositions  
 17A45 Quadratic algebras (not quadratic Jordan algebras)  
 17A50 Free algebras  
 17A60 Structure theory in general nonassociative rings  
 17A65 Radical theory in general nonassociative rings  
 17A70 Super algebras  
 17A75 Composition algebras  
 17A99 None of the above, but in this section  
**17Bxx Lie algebras (For Lie groups, see 22Exx.)**  
 17B05 Structure theory  
 17B10 Representations, algebraic theory (weights)  
 17B15 Representations, analytic theory  
 17B20 Simple, semisimple, reductive algebras (roots)  
 17B25 Exceptional algebras  
 17B30 Solvable, nilpotent algebras  
 17B35 Universal enveloping algebras, imbeddings  
 17B40 Automorphisms, derivations, other operators  
 17B45 Lie algebras of linear algebraic groups [See also 14Lxx and 20Gxx.]  
 17B50 Modular Lie algebras  
 17B55 Homological methods in Lie algebras  
 17B56 Cohomology of Lie algebras  
 17B60 Lie rings associated with other structures (associative, Jordan, etc.) [See also 15A30, 16A68, 17C40, 17C50.]  
 17B65 Infinite-dimensional Lie algebras [See also 22E65.]  
 17B67 Kac-Moody algebras (structure and representation theory)  
 17B70 Graded Lie algebras  
 17B99 None of the above, but in this section  
**17Cxx Jordan algebras (commutative)**  
 17C05 Identities  
 17C10 Structure theory  
 17C15 Representations  
 17C20 Simple, semisimple algebras  
 17C25 Universal enveloping algebras  
 17C30 Automorphisms, derivations, other operators  
 17C35 Formally real domains of positivity [See also 32Nxx.]  
 17C40 Exceptional Jordan algebras and associated Lie groups  
 17C45 Homological methods in Jordan algebras  
 17C46 Cohomology of Jordan algebras  
 17C50 Jordan rings associated with other structures [See also 16A68, 17B60.]  
 17C65 Infinite-dimensional Jordan algebras  
 17C99 None of the above, but in this section  
**17Dxx Other nonassociative rings and algebras**  
 17D05 Alternative rings  
 17D10 Mal'tsev (Mal'tsev) rings  
 17D15 Right alternative rings

- 17D20  $(\gamma, \delta)$ -rings
- 17D25 Lie admissible algebras
- 17D92 Genetic algebras
- 17D99 None of the above, but in this section

# 18-XX CATEGORY THEORY, HOMOLOGICAL ALGEBRA

- 18-00 Handbooks, dictionaries, and other reference works
- 18-01 Elementary exposition; textbooks
- 18-02 Advanced exposition (research surveys, monographs, etc.)
- 18-03 Historical (must also be assigned at least one classification number from Section 01)
- 18-04 Explicit machine computation and programs (not the theory of computation or programming)
- 18-06 Proceedings, conferences, etc.
- 18Axx **General theory of categories and functors**
- 18A05 Definitions, generalizations
- 18A10 Graphs, diagram schemes, precategories, neocategories [See also 20Lxx.]
- 18A15 Foundations, relations to logic and deductive systems [See also 03-XX.]
- 18A20 Epimorphisms, monomorphisms, special classes of morphisms, null morphisms, factorization (bicategories)
- 18A22 Special properties of functors (faithful, full, etc.)
- 18A23 Natural morphisms, dinatural morphisms
- 18A25 Functor categories, comma categories
- 18A30 Limits and colimits (products, sums, directed limits, pushouts, fiber products, equalizers, kernels, ends and coends, etc.)
- 18A32 Factorization of morphisms (via images, coimages, dominions, codominions), substructures, quotient structures, congruences, amalgams
- 18A35 Categories admitting limits (complete categories), functors commuting with limits, continuous functors, completions
- 18A40 Adjoint functors (representable functors, universal constructions, reflective subcategories, reflections, etc.), constructions of adjoints (Kan extensions, etc.)
- 18A99 None of the above, but in this section

## 18Bxx Special categories

- 18B05 Category of sets, characterizations [See also 03-XX.]
- 18B10 Category of relations, additive relations
- 18B15 Imbedding theorems, universal categories [See also 18E20.]
- 18B20 Categories of machines, automata, operative categories [See also 03D05, 68Qxx.]
- 18B25 Topoi [See also 03G30.]
- 18B30 Categories of topological spaces and continuous mappings [See also 54-XX.]
- 18B35 Preorders, orders and lattices (viewed as categories) [See also 06-XX.]
- 18B40 Groupoids, semigroupoids, semigroups, groups (viewed as categories) [See also 20Axx, 20Lxx, 20Mxx.]
- 18B99 None of the above, but in this section

## 18Cxx Categories and algebraic theories

- 18C05 Equational categories [See also 03-XX, 08C05.]
- 18C10 Theories (e.g. algebraic theories), structure, and semantics [See also 03-XX.]
- 18C15 Triples (= standard construction, monad or triad), algebras for a triple, homology and derived functors for triples [See also 18Gxx.]
- 18C20 Algebras and Kleisli categories associated with monads
- 18C99 None of the above, but in this section

## 18Dxx Categories with structure

- 18D05 Double categories, 2-categories, bicategories, hypercategories
- 18D10 Monoidal categories (= multiplicative categories) [See also 19D23.]
- 18D15 Closed categories (closed monoidal and Cartesian closed categories, etc.)

- 18D20 Enriched categories (over closed or monoidal categories)
- 18D25 Strong functors, strong adjunctions
- 18D30 Fibered categories
- 18D35 Structured objects in a category (group objects, etc.)
- 18D99 None of the above, but in this section

## 18Exx Abelian categories

- 18E05 Preadditive, additive categories
- 18E10 Exact categories, abelian categories
- 18E15 Grothendieck categories
- 18E20 Imbedding theorems [See also 18B15.]
- 18E25 Derived functors and satellites
- 18E30 Derived categories, triangulated categories
- 18E35 Localization of categories
- 18E40 Torsion theories, radicals [See also 13D30, 16A63.]
- 18E99 None of the above, but in this section

## 18Fxx Categories and geometry

- 18F05 Local categories and functors
- 18F10 Grothendieck topologies [See also 14F20.]
- 18F15 Abstract manifolds and fiber bundles [See also 55Rxx, 57Pxx.]
- 18F20 Presheaves and sheaves [See also 14F05, 32C35, 32L10, 54B40, 55N30.]
- 18F25 Algebraic  $K$ -theory and  $L$ -theory [See also 11Exx, 11R70, 11S70, 12-XX, 13D15, 14Cxx, 16A54, 19-XX, 57R65, 57R67.]

- 18F30 Grothendieck groups [See also 13D15, 16A54, 19Axx.]
- 18F99 None of the above, but in this section

## 18Gxx Homological algebra [See also 55Uxx.]

- 18G05 Projectives and injectives [See also 13C10, 13C11, 16A50, 16A52.]
- 18G10 Resolutions; derived functors [See also 18E25.]
- 18G15 Ext and Tor, generalizations, Künneth formula [See also 55U25.]
- 18G20 Homological dimension [See also 13Dxx, 16A60, 16A62.]
- 18G25 Relative homological algebra, projective classes
- 18G30 Simplicial sets, simplicial objects (in a category) [See also 55U10.]
- 18G35 Chain complexes [See also 18E30, 55U15.]
- 18G40 Spectral sequences, hypercohomology [See also 55Txx.]
- 18G50 Nonabelian homological algebra [See also 19D99.]
- 18G55 Nonabelian homotopical algebra
- 18G99 None of the above, but in this section

## 19-XX K-THEORY (to be used only for secondary classifications, until further notice) [See also 16A54, 18F25.]

- 19-00 Handbooks, dictionaries, and other reference works
- 19-01 Elementary exposition; textbooks
- 19-02 Advanced exposition (research surveys, monographs, etc.)
- 19-03 Historical (must also be assigned at least one classification number from Section 01)
- 19-04 Explicit machine computation and programs (not the theory of computation or programming)
- 19-06 Proceedings, conferences, etc.

## 19Axx Grothendieck groups and $K_0$ [See also 13D15, 18F30.]

- 19A13 Stability for projective modules [See also 13C10.]
- 19A15 Efficient generation
- 19A22 Frobenius modules, induction theory
- 19A31  $K_0$  of group rings and orders
- 19A49  $K_0$  of other rings
- 19A99 None of the above, but in this section

## 19Bxx Whitehead groups and $K_1$

- 19B10 Stable range conditions
- 19B14 Stability for linear groups
- 19B20  $SK_1$  of simple algebras
- 19B28  $K_1$  of group rings and orders
- 19B37 Congruence subgroup problems [See also 20H05.]
- 19B99 None of the above, but in this section



- 19Cxx Steinberg groups and  $K_2$**
- 19C09 Central extensions and Schur multipliers
  - 19C20 Symbols, presentations of  $K_2$
  - 19C25 Stability for  $K_2$
  - 19C30  $K_2$  and the Brauer group
  - 19C40 Excision for  $K_2$
  - 19C99 None of the above, but in this section
- 19Dxx Higher algebraic  $K$ -theory**
- 19D06  $Q$ - and plus-constructions
  - 19D10 Algebraic  $K$ -theory of spaces
  - 19D23 Symmetric monoidal categories [See also 18D10.]
  - 19D25 Karoubi-Villamayor-Gersten  $K$ -theory
  - 19D35 Negative  $K$ -theory, NK and Nil
  - 19D45 Higher symbols, Milnor  $K$ -theory
  - 19D55  $K$ -theory and homology
  - 19D99 None of the above, but in this section
- 19Exx  $K$ -theory in geometry**
- 19E08  $K$ -theory of schemes
  - 19E15 Algebraic cycles [See also 14C35.]
  - 19E20 Relatives with cohomology theories [See also 14F15.]
  - 19E99 None of the above, but in this section
- 19Fxx  $K$ -theory in number theory [See also 11R70, 11S70.]**
- 19F05 Generalized class field theory
  - 19F15 Symbols and arithmetic
  - 19F27 Étale cohomology, higher regulators, zeta and  $L$ -functions [See also 11R42, 11S40, 14G10.]
  - 19F99 None of the above, but in this section
- 19Gxx  $K$ -theory of forms [See also 11Exx.]**
- 19G05 Stability for quadratic modules
  - 19G12 Witt groups of rings [See also 11E81.]
  - 19G24  $L$ -theory of group rings [See also 11E81.]
  - 19G38 Relations with  $K$ -theory of rings
  - 19G99 None of the above, but in this section
- 19Kxx  $K$ -theory and operator algebras [See mainly 46L80, and also 46M20.]**
- 19K14  $K_0$  as an ordered group, traces
  - 19K33 EXT and  $K$ -homology
  - 19K56 Index theory
  - 19K99 None of the above, but in this section
- 19Lxx Topological  $K$ -theory [See also 55N15, 55R50, 55S25.]**
- 19L10 Riemann-Roch theorems, Chern characters
  - 19L20  $J$ -homomorphism, Adams operations [See also 55Q50.]
  - 19L41 Connective  $K$ -theory, cobordism [See also 55N22.]
  - 19L47 Equivariant  $K$ -theory [See also 55N91, 55P91, 55Q91, 55R91, 55S91.]
  - 19L64 Computations, geometric applications
  - 19L99 None of the above, but in this section
- 19M05 Miscellaneous applications of  $K$ -theory**
- 20-XX GROUP THEORY AND GENERALIZATIONS**
- 20-00 Handbooks, dictionaries, and other reference works
  - 20-01 Elementary exposition; textbooks
  - 20-02 Advanced exposition (research surveys, monographs, etc.)
  - 20-03 Historical (must also be assigned at least one classification number from Section 01)
  - 20-04 Explicit machine computation and programs (not the theory of computation or programming)
  - 20-06 Proceedings, conferences, etc.
- 20Axx Foundations**
- 20A05 Axiomatics and elementary properties
  - 20A10 Metamathematical considerations {For word problems, see 20F10.}
  - 20A15 Applications of logic to group theory
  - 20A99 None of the above, but in this section
- 20Bxx Permutation groups**
- 20B05 General theory for finite groups
  - 20B07 General theory for infinite groups
  - 20B10 Characterization theorems
  - 20B15 Uniprimitive groups
  - 20B20 Multiply transitive finite groups
  - 20B22 Multiply transitive infinite groups
  - 20B25 Finite automorphism groups of algebraic, geometric, or combinatorial structures [See also 05Bxx, 12F10, 20G40, 20H30, 51-XX.]
  - 20B27 Infinite automorphism groups [See also 12F10.]
  - 20B30 Symmetric groups, general
  - 20B35 Subgroups of symmetric groups
  - 20B99 None of the above, but in this section
- 20Cxx Representation theory of groups [See also 19A22 (for representation rings and Burnside rings).]**
- 20C05 Group rings of finite groups and their modules [See also 16A26.]
  - 20C07 Group rings of infinite groups and their modules [See also 16A27.]
  - 20C10 Integral representations of finite groups
  - 20C11  $p$ -adic representations of finite groups
  - 20C12 Integral representations of infinite groups
  - 20C15 Ordinary representations and characters
  - 20C20 Modular representations and characters
  - 20C25 Projective representations and multipliers
  - 20C30 Representations of finite symmetric groups and other special finite groups
  - 20C32 Representations of infinite symmetric groups and other special infinite groups
  - 20C35 Applications to physics
  - 20C99 None of the above, but in this section
- 20Dxx Abstract finite groups**
- 20D05 Classification of simple and nonsolvable groups
  - 20D06 Simple groups: alternating and classical groups [See also 20Gxx, 22Exx.]
  - 20D08 Simple groups: sporadic groups
  - 20D10 Solvable groups, theory of formations,  $\pi$ -length, ranks, factorable groups,  $p$ -groups [See also 20F17.]
  - 20D15 Nilpotent groups,  $p$ -groups
  - 20D20 Sylow subgroups, Sylow properties,  $\pi$ -groups,  $\pi$ -structure
  - 20D25 Special subgroups (Frattini, Fitting, etc.)
  - 20D30 Series and lattices of subgroups
  - 20D35 Subnormal subgroups
  - 20D40 Products of subgroups
  - 20D45 Automorphisms
  - 20D50 Covering of subgroups
  - 20D60 Arithmetic and combinatorial problems
  - 20D99 None of the above, but in this section
- 20Exx Structure and classification of infinite or finite groups**
- 20E05 Free nonabelian groups
  - 20E06 Free products, free products with amalgamation, Higman-Neumann-Neumann extensions, and generalizations
  - 20E07 Subgroup theorems
  - 20E10 Quasivarieties and varieties of groups
  - 20E15 Chains and lattices of subgroups, subnormal subgroups [See also 20F22.]
  - 20E18 Limits, profinite groups
  - 20E22 Extensions, wreath products, and other compositions
  - 20E25 Local properties
  - 20E26 Residual properties and generalizations
  - 20E28 Maximal subgroups, minimal subgroups
  - 20E32 Simple groups [See also 20D05.]
  - 20E34 General structure theorems
  - 20E36 General theorems concerning automorphisms of groups
  - 20E99 None of the above, but in this section

- 20Fxx Special aspects of infinite or finite groups**  
 20F05 Generators, relations, and presentations  
 20F06 Cancellation theory  
 20F10 Word problems, other decision problems, connections with logic and automata [See also 03D05, 03D40, 06B25, 08A50, 68Qxx.]  
 20F12 Commutator calculus  
 20F14 Derived series, central series, and generalizations  
 20F16 Solvable groups, supersolvable groups  
 20F17 Formations of groups [See also 20D10.]  
 20F18 Nilpotent groups  
 20F19 Generalizations of solvable and nilpotent groups  
 20F22 Other classes of groups defined by subgroup chains  
 20F24 FC-groups and their generalizations  
 20F26 Special subgroups  
 20F28 Automorphism groups of groups [See also 20E36.]  
 20F29 Representations of groups as automorphism groups of algebraic systems  
 20F32 Geometric group theory [See also 05C25, 20Exx, 20Gxx.]  
 20F34 Fundamental groups and their automorphisms [See also 57M05, 57Sxx.]  
 20F36 Braid groups  
 20F38 Other groups related to topology or analysis  
 20F40 Associated Lie structures  
 20F45 Engel conditions  
 20F50 Periodic groups  
 20F60 Ordered groups [See mainly 06F15.]  
 20F99 None of the above, but in this section
- 20Gxx Linear algebraic groups (classical groups) {For arithmetic theory, see 11E57, 11H06; for geometric theory, see 14Lxx, 22Exx; for other methods in representation theory, see 22E45, 22E46, 22E47, 22E50, 22E55.}**  
 20G05 Representation theory  
 20G10 Cohomology theory  
 20G15 Linear algebraic groups over arbitrary fields  
 20G20 Linear algebraic groups over the reals, the complexes, the quaternions  
 20G25 Linear algebraic groups over local fields and their integers  
 20G30 Linear algebraic groups over global fields and their integers  
 20G35 Linear algebraic groups over adèles and other rings and schemes  
 20G40 Linear algebraic groups over finite fields  
 20G45 Applications to physics; explicit representations  
 20G99 None of the above, but in this section
- 20Hxx Other groups of matrices**  
 20H05 Unimodular groups, congruence subgroups [See also 11F06, 19B37, 22E40, 51F20.]  
 20H10 Fuchsian groups and their generalizations [See also 11F06, 22E40, 30F35, 32Nxx.]  
 20H15 Other geometric groups, including crystallographic groups [See also 51-XX, especially 51F15, and 82A60.]  
 20H20 Other matrix groups over fields  
 20H25 Other matrix groups over rings  
 20H30 Other matrix groups over finite fields  
 20H99 None of the above, but in this section
- 20Jxx Connections with homological algebra and category theory**  
 20J05 Homological methods in group theory  
 20J06 Cohomology of finite groups  
 20J10 Groups arising as cohomology groups  
 20J15 Category of groups  
 20J99 None of the above, but in this section
- 20Kxx Abelian groups**  
 20K01 Finite abelian groups  
 20K05 Finitely generated groups
- 20K10 Torsion groups, primary groups and generalized primary groups  
 20K12 Ulm sequences  
 20K15 Torsion free groups, finite rank  
 20K20 Torsion free groups, infinite rank  
 20K21 Mixed groups  
 20K25 Direct sums, direct products, etc.  
 20K26 Indecomposable groups  
 20K27 Subgroups  
 20K30 Automorphisms, homomorphisms, endomorphisms, etc.  
 20K35 Extensions  
 20K40 Homological and categorical methods  
 20K45 Topological methods  
 20K99 None of the above, but in this section
- 20Lxx Groupoids (small categories in which all morphisms are isomorphisms)**  
 20L05 General theory  
 20L10 Connections with group theory  
 20L13 Mappings of groupoids  
 20L15 Connections with topology  
 20L17 Connections with category theory  
 20L99 None of the above, but in this section
- 20Mxx Semigroups**  
 20M05 Free semigroups, generators and relations, word problem  
 20M07 Varieties of semigroups  
 20M10 General structure theory  
 20M11 Radical theory  
 20M12 Ideal theory  
 20M14 Commutative semigroups  
 20M15 Mappings of semigroups  
 20M17 Regular semigroups (use only for secondary classification)  
 20M18 Inverse semigroups (use only for secondary classification)  
 20M20 Semigroups of transformations, etc. [See also 47D05, 47H20, 54H15.]  
 20M25 Semigroup rings, multiplicative semigroups of rings  
 20M30 Representation of semigroups  
 20M35 Semigroups in automata theory, linguistics, etc. [See also 03D05, 68Qxx, 68Sxx.]  
 20M50 Connections with homological algebra and category theory  
 20M99 None of the above, but in this section
- 20Nxx Other generalizations of groups**  
 20N05 Loops, quasigroups [See also 05Bxx.]  
 20N07 Mappings of loops  
 20N10 Ternary systems (heaps, semiheaps, heapoids, etc.)  
 20N15  $n$ -ary systems  
 20N99 None of the above, but in this section
- 20P05 Probability methods in group theory**
- 22-XX TOPOLOGICAL GROUPS, LIE GROUPS {For transformation groups, see 54H15, 57Sxx, 58-XX. For abstract harmonic analysis, see 43-XX.}**  
 22-00 Handbooks, dictionaries, and other reference works  
 22-01 Elementary exposition; textbooks  
 22-02 Advanced exposition (research surveys, monographs, etc.)  
 22-03 Historical (must also be assigned at least one classification number from Section 01)  
 22-04 Explicit machine computation and programs (not the theory of computation or programming)  
 22-06 Proceedings, conferences, etc.
- 22Axx Topological algebraic systems {For topological rings and fields, see 12Jxx, 13Jxx, 16A80; for dual spaces of operator algebras and topological groups, see 47D35.}**  
 22A05 Structure of general topological groups  
 22A10 Analysis on general topological groups  
 22A15 Structure of topological semigroups

- 22A20 Analysis on topological semigroups  
 22A25 Representations of general topological groups and semigroups  
 22A26 Topological semilattices, lattices and applications [See also 06B30, 06F30.]  
 22A30 Other topological algebraic systems and their representations  
 22A99 None of the above, but in this section  
**22Bxx Locally compact abelian (LCA) groups**  
 22B05 General properties and structure of LCA groups  
 22B10 Structure of group algebras of LCA groups  
 22B99 None of the above, but in this section  
**22C05 Compact groups**  
**22Dxx Locally compact groups and their algebras**  
 22D05 General properties and structure of locally compact groups  
 22D10 Unitary representations of locally compact groups  
 22D12 Other representations of locally compact groups  
 22D15 Group algebras of locally compact groups  
 22D20 Representations of group algebras  
 22D25  $C^*$ -algebras and  $W^*$ -algebras arising from group representations [See also 46Lxx.]  
 22D30 Induced representations  
 22D35 Duality theorems  
 22D40 Ergodic theory on groups [See also 28Dxx and 43A60.]  
 22D45 Automorphism groups of locally compact groups  
 22D99 None of the above, but in this section  
**22Exx Lie groups {For the topology of Lie groups and homogeneous spaces, see 57Sxx, 57Txx; for analysis thereon, see 43A80, 43A85, 43A90.}**  
 22E05 Local Lie groups [See also 34-XX, 35-XX, 58H05.]  
 22E10 General properties and structure of complex Lie groups [See also 32M05.]  
 22E15 General properties and structure of real Lie groups  
 22E20 General properties and structure of other Lie groups  
 22E25 Nilpotent and solvable Lie groups  
 22E27 Representations of nilpotent and solvable Lie groups (special orbital integrals, non-Type I representations, etc.)  
 22E30 Analysis on real and complex Lie groups [See also 33A75, 43-XX.]  
 22E35 Analysis on  $p$ -adic Lie groups [See also 11R56.]  
 22E40 Discrete subgroups of Lie groups [See also 20Hxx and 32Nxx.]  
 22E41 Continuous cohomology [See also 57R32, 57Txx, 58H10.]  
 22E43 Structure and representation of the Lorentz group  
 22E45 Representations of Lie and linear algebraic groups over real fields: analytic methods {For the purely algebraic theory, see 20G05.}  
 22E46 Semisimple Lie groups and their representations  
 22E47 Representations of Lie and real algebraic groups: algebraic methods (Verma modules, etc.) [See also 17B35.]  
 22E50 Representations of Lie and linear algebraic groups over local fields  
 22E55 Representations of Lie and linear algebraic groups over global fields and adèle rings [See also 20G05.]  
 22E60 Lie algebras of Lie groups {For the algebraic theory of Lie algebras, see 17Bxx.}  
 22E65 Infinite-dimensional Lie groups and their Lie algebras [See also 17B65, 58B25, 58H05.]  
 22E70 Applications of Lie groups to physics; explicit representations [See also 81C40, 81Gxx.]  
 22E99 None of the above, but in this section  
**26-XX REAL FUNCTIONS [See also 54C30.]**  
 26-00 Handbooks, dictionaries, and other reference works  
 26-01 Elementary exposition; textbooks  
 26-02 Advanced exposition (research surveys, monographs, etc.)  
 26-03 Historical (must also be assigned at least one classification number from Section 01)  
 26-04 Explicit machine computation and programs (not the theory of computation or programming)  
 26-06 Proceedings, conferences, etc.  
**26Axx Functions of one variable**  
 26A03 Foundations: limits and generalizations, elementary topology of the line  
 26A06 One-variable calculus  
 26A09 Elementary functions  
 26A12 Rate of growth of functions, orders of infinity, slowly increasing functions [See also 26A48.]  
 26A15 Continuity and related questions (modulus of continuity, semicontinuity, discontinuities, etc.) {For properties determined by Fourier coefficients, see 42A16; for those determined by approximation properties, see 41A25.}  
 26A16 Lipschitz (Hölder) classes  
 26A18 Iteration [See also 39B10, 47H10, 54H25, 58F08.]  
 26A21 Classification of real functions; Baire classification of sets and functions [See also 04A15, 28A05, 54C50.]  
 26A24 Differentiation (functions of one variable): general theory, generalized derivatives, mean-value theorems [See also 28A15.]  
 26A27 Nondifferentiability (nondifferentiable functions, points of nondifferentiability), discontinuous derivatives  
 26A30 Singular functions, Cantor functions, functions with other special properties  
 26A33 Fractional derivatives and integrals  
 26A36 Antidifferentiation  
 26A39 Denjoy and Perron integrals, other special integrals  
 26A42 Integrals of Riemann, Stieltjes and Lebesgue type [See also 28-XX.]  
 26A45 Functions of bounded variation, generalizations  
 26A46 Absolutely continuous functions  
 26A48 Monotonic functions, generalizations  
 26A51 Convexity, generalizations  
 26A99 None of the above, but in this section  
**26Bxx Functions of several variables**  
 26B05 Continuity and differentiation questions  
 26B10 Implicit function theorems, Jacobians, transformations with several variables  
 26B12 Calculus of vector functions  
 26B15 Integration: length, area, volume [See also 28A75, 51M25.]  
 26B20 Integral formulas (Stokes, Gauss, Green, etc.)  
 26B25 Convexity, generalizations  
 26B30 Absolutely continuous functions, functions of bounded variation  
 26B35 Special properties of functions of several variables, Hölder conditions, etc.  
 26B40 Representation and superposition of functions  
 26B99 None of the above, but in this section  
**26Cxx Polynomials, rational functions**  
 26C05 Polynomials: analytic properties, inequalities, etc.  
 26C10 Polynomials: location of zeros [See also 12D10, 30C15, 65H05.]  
 26C15 Rational functions [See also 14G30.]  
 26C99 None of the above, but in this section  
**26Dxx Inequalities {For maximal function inequalities, see 42B25; for functional inequalities, see 39C05.}**  
 26D05 Inequalities for trigonometric functions and polynomials  
 26D10 Inequalities involving derivatives and differential and integral operators  
 26D15 Inequalities for sums, series and integrals  
 26D20 Other analytical inequalities  
 26D99 None of the above, but in this section  
**26Exx Miscellaneous topics [See also 58Cxx.]**  
 26E05 Real-analytic functions  
 26E10  $C^\infty$ -functions, quasi-analytic functions



- 26E15 Calculus of functions on infinite-dimensional spaces
- 26E20 Calculus of functions taking values in infinite-dimensional spaces
- 26E25 Set-valued functions [See also 54C60.]
- 26E30 Non-Archimedean analysis [See also 12J25.]
- 26E35 Nonstandard analysis [See also 03H05.]
- 26E99 None of the above, but in this section

## 28-XX MEASURE AND INTEGRATION (For analysis on manifolds, see 58-XX.)

- 28-00 Handbooks, dictionaries, and other reference works
- 28-01 Elementary exposition; textbooks
- 28-02 Advanced exposition (research surveys, monographs, etc.)
- 28-03 Historical (must also be assigned at least one classification number from Section 01)
- 28-04 Explicit machine computation and programs (not the theory of computation or programming)
- 28-06 Proceedings, conferences, etc.
- 28Axx **Classical measure theory**
- 28A05 Classes of sets (Borel fields,  $\sigma$ -rings, etc.), measurable sets, Suslin sets, analytic sets [See also 04A15, 26A21, 54H05.]
- 28A10 Real- or complex-valued set functions
- 28A12 Contents, measures, outer measures, capacities
- 28A15 Abstract differentiation theory, differentiation of set functions [See also 26A24.]
- 28A20 Measurable and nonmeasurable functions, sequences of measurable functions, modes of convergence
- 28A25 Integration with respect to measures and other set functions
- 28A33 Spaces of measures, convergence of measures [See also 46E27, 60Bxx.]
- 28A35 Measures and integrals in product spaces
- 28A50 Integration and disintegration of measures
- 28A51 Lifting theory [See also 46G15.]
- 28A60 Measures on Boolean rings, measure algebras [See also 54H10.]
- 28A75 Length, area, volume, other geometric measure theory [See also 26B15, 49F20.]
- 28A99 None of the above, but in this section
- 28Bxx **Measures and integrals with values in abstract spaces**
- 28B05 Vector-valued measures and integrals [See also 46G10.]
- 28B10 Group- or semigroup-valued measures and integrals
- 28B15 Measures and integrals with values in general ordered systems
- 28B20 Set-valued measures; integration of set-valued functions; measurable selections [See also 54C60, 54C65.]
- 28B99 None of the above, but in this section
- 28Cxx **Measures on spaces with additional structure [See also 46G12, 58C35, 58D20.]**
- 28C05 Integration theory via linear functionals (Radon measures, Daniell integrals, etc.), representing measures
- 28C10 Measures on topological groups, Haar measures, invariant measures [See also 43A05.]
- 28C15 Measures on topological spaces (regularity of measures, etc.)
- 28C20 Measures and integrals in function spaces (Wiener measure, Gauss measure, etc.) [See also 58D20, 60B11.]
- 28C99 None of the above, but in this section
- 28Dxx **Measure-theoretic ergodic theory [See also 22D40, 47A35, 54H20, 58Fxx, 60Fxx, 60G10.]**
- 28D05 Measure-preserving transformations
- 28D10 One-parameter continuous families of measure-preserving transformations
- 28D15 General groups of measure-preserving transformations
- 28D20 Entropy and other invariants
- 28D99 None of the above, but in this section

## 28Exx Miscellaneous topics

- 28E05 Nonstandard measure theory [See also 03H05.]
- 28E10 Fuzzy measures [See also 03E72.]
- 28E99 None of the above, but in this section

## 30-XX FUNCTIONS OF A COMPLEX VARIABLE (For analysis on manifolds, see 58-XX.)

- 30-00 Handbooks, dictionaries, and other reference works
- 30-01 Elementary exposition; textbooks
- 30-02 Advanced exposition (research surveys, monographs, etc.)
- 30-03 Historical (must also be assigned at least one classification number from Section 01)
- 30-04 Explicit machine computation and programs (not the theory of computation or programming)
- 30-06 Proceedings, conferences, etc.
- 30Axx **General properties**
- 30A05 Monogenic properties of complex functions (including polygenic and areolar monogenic functions)
- 30A10 Inequalities in the complex domain
- 30A99 None of the above, but in this section
- 30Bxx **Series expansions**
- 30B10 Power series (including lacunary series)
- 30B20 Random power series
- 30B30 Boundary behavior of power series, over-convergence
- 30B40 Analytic continuation
- 30B50 Dirichlet series and other series expansions, exponential series [See also 40-XX, 41-XX, 42-XX.]
- 30B60 Completeness problems, closure of a system of functions
- 30B70 Continued fractions [See also 11A55, 40A15.]
- 30B99 None of the above, but in this section
- 30Cxx **Geometric function theory**
- 30C10 Polynomials
- 30C15 Zeros of polynomials, rational functions, and other analytic functions (e.g. zeros of functions with bounded Dirichlet integral) (For algebraic theory, see 12D10; for real methods, see 26C10.)
- 30C20 Conformal mappings of special domains
- 30C25 Covering theorems in conformal mapping theory
- 30C30 Numerical methods in conformal mapping theory [See also 65E05.]
- 30C35 General theory of conformal mappings
- 30C40 Kernel functions and applications
- 30C45 Special classes of univalent and multivalent functions (starlike, convex, bounded rotation, etc.)
- 30C50 Coefficient problems for univalent and multivalent functions
- 30C55 General theory of univalent and multivalent functions
- 30C60 Quasiconformal mappings
- 30C70 Extremal problems for conformal and quasiconformal mappings, variational methods
- 30C75 Extremal problems for conformal and quasiconformal mappings, other methods
- 30C80 Maximum principle; Schwarz's lemma, Lindelöf principle, analogues and generalizations; subordination
- 30C85 Capacity and harmonic measure in the complex plane [See also 31A15.]
- 30C99 None of the above, but in this section
- 30Dxx **Entire and meromorphic functions, and related topics**
- 30D05 Functional equations in the complex domain, iteration and composition of analytic functions [See also 34A20, 39-XX.]
- 30D10 Representations of entire functions by series and integrals
- 30D15 Special classes of entire functions and growth estimates
- 30D20 Entire functions, general theory
- 30D30 Meromorphic functions, general theory
- 30D35 Distribution of values, Nevanlinna theory
- 30D40 Cluster sets, prime ends, boundary behavior

- 30D45 Normal functions, normal families  
 30D50 Blaschke products, bounded characteristic, bounded functions, functions with positive real part  
 30D55  $H^p$ -classes  
 30D60 Quasianalytic and other classes of functions  
 30D99 None of the above, but in this section  
**30Exx Miscellaneous topics of analysis in the complex domain**  
 30E05 Moment problems, interpolation problems  
 30E10 Approximation in the complex domain  
 30E15 Asymptotic representations in the complex domain  
 30E20 Integration, integrals of Cauchy type, integral representations of analytic functions [See also 45Exx.]  
 30E25 Boundary value problems [See also 45Exx.]  
 30E99 None of the above, but in this section  
**30Fxx Riemann surfaces**  
 30F10 Compact Riemann surfaces and uniformization [See also 14H15, 32G15.]  
 30F15 Harmonic functions on Riemann surfaces  
 30F20 Classification theory of Riemann surfaces  
 30F25 Ideal boundary theory  
 30F30 Differentials on Riemann surfaces  
 30F35 Fuchsian groups and automorphic functions [See also 11Fxx, 20H10, 32Gxx, 32Nxx.]  
 30F40 Kleinian groups [See also 20H10.]  
 30F99 None of the above, but in this section  
**30Gxx Generalised function theory**  
 30G05 Non-Archimedean function theory [See also 12J25.]  
 30G10 Nonstandard function theory [See also 03H05.]  
 30G15 Topological function theory  
 30G20 Generalizations of Bers or Vekua type (pseudanalytic,  $p$ -analytic, etc.)  
 30G25 Discrete analytic functions  
 30G30 Other generalizations of analytic functions (including abstract-valued functions)  
 30G35 Functions of hypercomplex variables and generalized variables  
 30G99 None of the above, but in this section  
**30H05 Spaces and algebras of analytic functions** [See also 32E25, 46Exx, 46J15.]  
**31-XX POTENTIAL THEORY** {For probabilistic potential theory, see 60J45.}  
 31-00 Handbooks, dictionaries, and other reference works  
 31-01 Elementary exposition; textbooks  
 31-02 Advanced exposition (research surveys, monographs, etc.)  
 31-03 Historical (must also be assigned at least one classification number from Section 01)  
 31-04 Explicit machine computation and programs (not the theory of computation or programming)  
 31-06 Proceedings, conferences, etc.  
**31Axx Two-dimensional theory**  
 31A05 Harmonic, subharmonic, superharmonic functions  
 31A10 Integral representations  
 31A15 Potentials and capacity, harmonic measure, extremal length [See also 30C85.]  
 31A20 Boundary behavior (theorems of Fatou type, etc.)  
 31A25 Boundary value and inverse problems  
 31A30 Biharmonic, polyharmonic functions and equations, Poisson's equation  
 31A35 Connections with differential equations  
 31A99 None of the above, but in this section  
**31Bxx Higher-dimensional theory**  
 31B05 Harmonic, subharmonic, superharmonic functions  
 31B10 Integral representations  
 31B15 Potentials and capacities, extremal length  
 31B20 Boundary value and inverse problems  
 31B25 Boundary behavior  
 31B30 Biharmonic and polyharmonic equations and functions  
 31B35 Connections with differential equations  
 31B99 None of the above, but in this section  
**31Cxx Other generalizations**  
 31C05 Harmonic, subharmonic, superharmonic functions  
 31C10 Pluriharmonic and plurisubharmonic functions [See also 32F05.]  
 31C12 Potential theory on Riemannian manifolds [See also 53C20; for Hodge theory, see 58A14.]  
 31C15 Potentials and capacities  
 31C20 Discrete potential theory and numerical methods  
 31C25 Dirichlet spaces  
 31C35 Martin boundary theory [See also 60J50.]  
 31C99 None of the above, but in this section  
**31D05 Axiomatic potential theory**  
**32-XX SEVERAL COMPLEX VARIABLES AND ANALYTIC SPACES** {For infinite-dimensional holomorphy, see also 46G20, 58B12.}  
 32-00 Handbooks, dictionaries, and other reference works  
 32-01 Elementary exposition; textbooks  
 32-02 Advanced exposition (research surveys, monographs, etc.)  
 32-03 Historical (must also be assigned at least one classification number from Section 01)  
 32-04 Explicit machine computation and programs (not the theory of computation or programming)  
 32-06 Proceedings, conferences, etc.  
**32Axx Holomorphic functions of several complex variables**  
 32A05 Power series, series of functions  
 32A07 Special domains (Reinhardt, Hartogs, tube domains, etc.)  
 32A10 Holomorphic functions  
 32A15 Entire functions  
 32A17 Normal families  
 32A20 Meromorphic functions  
 32A22 Nevanlinna theory: growth estimates {For geometric theory, see 32H25, 32H30.}  
 32A25 Integral representation  
 32A27 Local theory of residues [See also 32C30.]  
 32A30 Other generalizations of function theory of one complex variable (should also be assigned at least one classification number from Section 30) {For functions of several hypercomplex variables, see 30G35.}  
 32A35  $H^p$ -spaces [See also 32M15, 42B30, 43A85, 46J15.]  
 32A40 Boundary behavior  
 32A45 Hyperfunctions [See also 46F15.]  
 32A99 None of the above, but in this section  
**32Bxx Local analytic geometry** [See also 13-XX and 14-XX.]  
 32B05 Analytic algebra and generalizations, preparation theorems  
 32B10 Germs of analytic sets  
 32B15 Analytic subsets of affine space  
 32B20 Semi-analytic sets and subanalytic sets  
 32B25 Triangulation and related questions  
 32B30 Local singularities [See also 14B05, 32C40, 32C42.]  
 32B99 None of the above, but in this section  
**32Cxx General theory of analytic spaces**  
 32C05 Real-analytic manifolds, real-analytic spaces [See also 14G30, 58A07.]  
 32C10 Complex manifolds {For almost complex manifolds, see 53C15.}  
 32C15 Complex spaces  
 32C20 Normal analytic spaces  
 32C25 Analytic subsets and submanifolds  
 32C30 Integration on analytic sets and spaces, currents {For local theory, see 32A25 or 32A27.}  
 32C35 Analytic sheaves and cohomology groups [See also 14Fxx, 18F20, 55N30.]  
 32C36 Local cohomology of analytic spaces  
 32C37 Duality theorems

- 32C38 Sheaves of differential operators and their modules  
[See also 35A27, 58G07.]
- 32C40 Singularities
- 32C42 Stratified sets, etc. [See also 32Bxx.]
- 32C45 Modifications, resolution of singularities  
[See also 14E15.]
- 32C99 None of the above, but in this section
- 32Dxx Analytic continuation**
- 32D05 Domains of holomorphy
- 32D10 Envelopes of holomorphy
- 32D15 Continuation of analytic objects
- 32D20 Removable singularities
- 32D25 Non-Archimedean function theory
- 32D99 None of the above, but in this section
- 32Exx Holomorphic convexity**
- 32E05 Holomorphically convex complex spaces, reduction theory
- 32E10 Stein spaces, Stein manifolds
- 32E15 Runge pairs
- 32E20 Polynomial convexity
- 32E25 Algebras of holomorphic functions [See also 30H05, 46J10, 46J15.]
- 32E27 Krasner-Tate algebras, etc. (algebras of holomorphic functions over non-Archimedean fields)
- 32E30 Holomorphic and polynomial approximation
- 32E35 Global boundary behavior of holomorphic functions
- 32E99 None of the above, but in this section
- 32Fxx Geometric convexity**
- 32F05 Plurisubharmonic functions and generalizations  
[See also 31C10.]
- 32F10  $q$ -convexity,  $q$ -concavity
- 32F15 Pseudoconvex domains
- 32F20 Geometric results on  $\bar{\partial}$ -Neumann problems  
[See also 35N15.]
- 32F25 Real submanifolds in complex manifolds
- 32F30 Pseudoconvex manifolds
- 32F99 None of the above, but in this section
- 32Gxx Deformations of analytic structures**
- 32G05 Deformations of complex structures [See also 13D10, 16A58, 58H10, 58H15.]
- 32G07 Deformations of special (e.g. CR) structures
- 32G10 Deformations of submanifolds and subspaces
- 32G11 Deformations of singularities
- 32G13 Analytic moduli problems {For algebraic moduli problems, see 14D20.}
- 32G15 Moduli of Riemann surfaces, Teichmüller theory  
[See also 14H15, 30Fxx.]
- 32G20 Period matrices [See also 14H05.]
- 32G99 None of the above, but in this section
- 32Hxx Holomorphic mappings**
- 32H05 Representative domains
- 32H10 Bergman kernel function
- 32H15 Invariant metrics and pseudodistances
- 32H20 Hyperbolic complex manifolds
- 32H25 Picard-type theorems and generalizations {For function-theoretic properties, see 32A22.}
- 32H30 Value distribution theory in higher dimensions {For function-theoretic properties, see 32A22.}
- 32H35 Proper mappings, finiteness theorems
- 32H99 None of the above, but in this section
- 32Jxx Compact analytic spaces {For Riemann surfaces, see 14Hxx, 30Fxx.}**
- 32J05 Compactification
- 32J10 Algebraic dependence theorems
- 32J15 Compact surfaces
- 32J20 Algebraicity criteria
- 32J25 Transcendental methods of algebraic geometry  
[See also 14C30.]
- 32J99 None of the above, but in this section
- 32Kxx Generalizations of analytic spaces (should also be assigned at least one other classification number in this section)**
- 32K05 Banach analytic spaces [See also 58Bxx.]
- 32K10 Non-Archimedean analytic spaces
- 32K15 Differentiable functions on analytic spaces, differentiable spaces [See also 58C25.]
- 32K99 None of the above, but in this section
- 32Lxx Holomorphic fiber spaces [See also 55Rxx.]**
- 32L05 Holomorphic fiber bundles and generalizations
- 32L10 Sheaves and cohomology of sections of holomorphic vector bundles, general results [See also 18F20, 55N30.]
- 32L15 Bundle convexity [See also 32F10.]
- 32L20 Vanishing theorems
- 32L25 Twistor theory, double fibrations
- 32L99 None of the above, but in this section
- 32Mxx Complex spaces with a group of automorphisms**
- 32M05 Complex Lie groups, automorphism groups of complex spaces [See also 22E10.]
- 32M10 Homogeneous complex manifolds [See also 14M17, 57T15.]
- 32M15 Hermitian symmetric spaces, bounded symmetric domains [See also 22E10, 22E40, 53C35, 57T15.]
- 32M99 None of the above, but in this section
- 32Nxx Automorphic functions [See also 11Fxx, 20H10, 22E40, 30F35.]**
- 32N05 General theory of automorphic functions of several complex variables
- 32N10 Automorphic forms
- 32N15 Automorphic functions in symmetric domains
- 32N99 None of the above, but in this section
- 33-XX SPECIAL FUNCTIONS {33-XX deals with the properties of functions as functions. General systems of orthogonal functions are treated in 42C05. Expansions in orthogonal functions are treated in 42C10, 42C15.}**
- 33-00 Handbooks, dictionaries, and other reference works
- 33-01 Elementary exposition; textbooks
- 33-02 Advanced exposition (research surveys, monographs, etc.)
- 33-03 Historical (must also be assigned at least one classification number from Section 01)
- 33-04 Explicit machine computation and programs (not the theory of computation or programming)
- 33-06 Proceedings, conferences, etc.
- 33A10 Exponential and trigonometric functions
- 33A15 Gamma and beta functions
- 33A20 Error function, probability integral
- 33A25 Elliptic functions and integrals
- 33A30 Simple hypergeometric functions of one and several variables
- 33A35 Generalized hypergeometric functions of one and several variables ( $E$ -functions,  $G$ -functions,  $H$ -functions, etc.)
- 33A40 Cylindrical functions, Bessel functions
- 33A45 Spherical functions (Legendre polynomials and functions, spherical harmonics), ultraspherical polynomials
- 33A50 Gegenbauer functions
- 33A55 Lamé, Mathieu, spheroidal wave functions
- 33A60 Other wave functions
- 33A65 Orthogonal special functions and polynomials (Chebyshev, Hermite, Jacobi, Laguerre, etc.)
- 33A70 Other special functions
- 33A75 Special functions and Lie groups [See also 22Exx, 43A80.]
- 33A99 Miscellaneous topics



**34-XX ORDINARY DIFFERENTIAL EQUATIONS**

- 34-00 Handbooks, dictionaries, and other reference works
- 34-01 Elementary exposition; textbooks
- 34-02 Advanced exposition (research surveys, monographs, etc.)
- 34-03 Historical (must also be assigned at least one classification number from Section 01)
- 34-04 Explicit machine computation and programs (not the theory of computation or programming)
- 34-06 Proceedings, conferences, etc.
- 34Axx General theory**
  - 34A05 Solutions in closed form, integration by quadratures, reduction of differential equations
  - 34A08 Equations not solved with respect to the highest-order derivative, singular solutions
  - 34A10 Initial value problems: general existence and uniqueness theorems; continuous dependence of solutions on parameters, initial conditions and boundary conditions [See also 45D05.]
  - 34A15 Initial value problems: continuation of solutions
  - 34A20 Differential equations in the complex domain [See also 30D05.]
  - 34A25 Analytical theory: series, transformations, transforms, operational calculus, etc. [See also 44-XX, 47E05.]
  - 34A30 Linear equations and systems
  - 34A34 Nonlinear equations and systems, general
  - 34A35 Differential equations of infinite order
  - 34A40 Differential inequalities
  - 34A45 Theoretical approximation of solutions
  - 34A50 Numerical approximation of solutions {For numerical analysis, see 65Lxx.}
  - 34A55 Inverse problems
  - 34A60 Equations with multivalued right-hand sides [See also 49A50, 49E10.]
  - 34A99 None of the above, but in this section
- 34Bxx Boundary value problems**
  - 34B05 Linear equations
  - 34B10 Multipoint boundary value problems
  - 34B15 Nonlinear boundary value problems
  - 34B20 Weyl theory and its generalizations
  - 34B25 Spectral theory, Sturm-Liouville, and scattering theory; eigenfunctions, eigenvalues, and expansions [See also 42-XX, 43-XX, 45C05, 47Axx, 47Bxx, 47E05.]
  - 34B27 Green functions
  - 34B30 Special equations (Mathieu, Hill, Bessel, etc.) [See also 33-XX.]
  - 34B99 None of the above, but in this section
- 34Cxx Qualitative theory**
  - 34C05 Location of integral curves, singular points, limit cycles
  - 34C10 Zeros, disconjugacy, oscillation and comparison of solutions
  - 34C11 Growth, boundedness of solutions
  - 34C15 Nonlinear oscillations
  - 34C20 Transformation and reduction of equations and systems
  - 34C25 Periodic solutions
  - 34C27 Almost-periodic solutions
  - 34C28 Other types of "recurrent" solutions
  - 34C29 Averaging method [See also 47H10.]
  - 34C30 Manifolds of solutions
  - 34C35 Dynamical systems [See also 54H20, 58Fxx, 70-XX.]
  - 34C40 Equations and systems on manifolds [See mainly 58Fxx, 58Gxx.]
  - 34C45 Method of integral manifolds
  - 34C50 Method of accelerated convergence
  - 34C99 None of the above, but in this section
- 34Dxx Stability theory [See also 58F10, 93Dxx.]**
  - 34D05 Asymptotic properties; characteristic exponents
  - 34D10 Perturbations
  - 34D15 Singular perturbations

- 34D20 Lyapunov stability
- 34D25 Popov-type stability
- 34D30 Structural stability and analogous concepts [See also 58Fxx.]
- 34D40 Ultimate boundedness
- 34D99 None of the above, but in this section
- 34Exx Asymptotic theory**
  - 34E05 Asymptotic expansions
  - 34E10 Perturbations
  - 34E15 Singular perturbations, general theory
  - 34E20 Singular perturbations, turning point theory, WKB-methods
  - 34E99 None of the above, but in this section
- 34F05 Equations and systems with randomness [See also 60H10, 93Exx.]**
- 34Gxx Differential equations in abstract spaces [See also 58D25.]**
  - 34G10 Linear equations [See also 47Axx, 47Bxx, 47D05.]
  - 34G20 Nonlinear equations [See also 47Hxx.]
  - 34G99 None of the above, but in this section
- 34H05 Control problems [See also 49-XX, 93-XX.]**
- 34Kxx Functional-differential and differential-difference equations, with or without deviating (or retarded) arguments**
  - 34K05 General theory
  - 34K10 Boundary value problems
  - 34K15 Qualitative theory
  - 34K20 Stability theory
  - 34K25 Asymptotic theory
  - 34K30 Equations in abstract spaces
  - 34K35 Control problems
  - 34K99 None of the above, but in this section
- 35-XX PARTIAL DIFFERENTIAL EQUATIONS**
  - 35-00 Handbooks, dictionaries, and other reference works
  - 35-01 Elementary exposition; textbooks
  - 35-02 Advanced exposition (research surveys, monographs, etc.)
  - 35-03 Historical (must also be assigned at least one classification number from Section 01)
  - 35-04 Explicit machine computation and programs (not the theory of computation or programming)
  - 35-06 Proceedings, conferences, etc.
  - 35Axx General theory**
    - 35A05 General existence and uniqueness theorems
    - 35A07 Local existence and uniqueness theorems [See also 35H05, 35Sxx.]
    - 35A08 Fundamental solutions
    - 35A10 Cauchy-Kowalewski theorems
    - 35A15 Variational methods
    - 35A20 Analytic methods, singularities
    - 35A22 Transform methods
    - 35A25 Other special methods
    - 35A27 Sheaf-theoretic and microlocal methods; methods of homological algebra [See also 32C38, 58G07.]
    - 35A30 Geometric theory, characteristics, transformations
    - 35A35 Theoretical approximation to solutions
    - 35A40 Numerical approximation to solutions {For numerical analysis, see 65Mxx, 65Nxx, 65P05.}
    - 35A99 None of the above, but in this section
  - 35Bxx Qualitative properties of solutions**
    - 35B05 Comparison theorems; oscillation, zeros and growth of solutions
    - 35B10 Periodic solutions
    - 35B15 Almost periodic solutions
    - 35B20 Perturbations
    - 35B25 Singular perturbations
    - 35B30 Dependence of solutions on initial and boundary data, parameters
    - 35B32 Bifurcation
    - 35B35 Stability, boundedness

- 35B37 Control [See also 49-XX, 93-XX.]  
 35B40 Asymptotic behavior of solutions  
 35B45 A priori estimates  
 35B50 Maximum principles  
 35B60 Continuation and prolongation [See also 58A15, 58A17, 58Hxx.]  
 35B65 Smoothness of solutions  
 35B99 None of the above, but in this section
- 35Cxx Representations of solutions**  
 35C05 Solutions in closed form  
 35C10 Series solutions, expansion theorems  
 35C15 Integral representations  
 35C20 Asymptotic expansions  
 35C99 None of the above, but in this section
- 35Dxx Generalized solutions**  
 35D05 Existence of generalized solutions  
 35D10 Regularity of generalized solutions  
 35D99 None of the above, but in this section
- 35Exx Equations and systems with constant coefficients**  
 [See also 35N05.]  
 35E05 Fundamental solutions  
 35E10 Convexity properties  
 35E15 Initial value problems  
 35E20 General theory  
 35E99 None of the above, but in this section
- 35Fxx General first-order equations and systems**  
 35F05 Linear equations and systems, general  
 35F10 Initial value problems for linear equations and systems  
 35F15 Boundary value problems for linear equations and systems  
 35F20 Nonlinear equations and systems, general  
 35F25 Initial value problems for nonlinear equations and systems  
 35F30 Boundary value problems for nonlinear equations and systems  
 35F99 None of the above, but in this section
- 35Gxx General higher-order equations and systems**  
 35G05 Linear equations and systems, general  
 35G10 Initial value problems for linear equations and systems  
 35G15 Boundary value problems for linear equations and systems  
 35G20 Nonlinear equations and systems, general  
 35G25 Initial value problems for nonlinear equations and systems  
 35G30 Boundary value problems for nonlinear equations and systems  
 35G99 None of the above, but in this section
- 35H05 Hypoelliptic equations and systems**  
 [See also 58Gxx.]
- 35Jxx Elliptic equations and systems** [See also 58G05, 58G10.]  
 35J05 Laplace equation, reduced wave equation (Helmholtz), Poisson equation  
 35J10 Schrödinger operator [See also 47A40.]  
 35J15 Second-order equations, general  
 35J20 Second-order equations, variational methods  
 35J25 Second-order equations, boundary value problems  
 35J30 Higher-order equations, general  
 35J35 Higher-order equations, variational methods  
 35J40 Higher-order equations, boundary value problems  
 35J45 Systems, general  
 35J50 Systems, variational methods  
 35J55 Systems, boundary value problems  
 35J60 Nonlinear equations and systems  
 35J65 Nonlinear boundary value problems for linear equations and systems; boundary value problems for nonlinear equations and systems  
 35J67 Boundary values of solutions  
 35J70 Equations and systems of degenerate type
- 35J85 Unilateral problems; variational inequalities  
 [See also 35R35, 49A29.]  
 35J99 None of the above, but in this section
- 35Kxx Parabolic equations and systems** [See also 58G11.]  
 35K05 Heat equation  
 35K10 Second-order equations, general  
 35K15 Second-order equations, initial value problems  
 35K20 Second-order equations, boundary value problems  
 35K22 Evolution equations (any order in the spatial derivatives) [See also 58D25.]  
 35K25 Higher-order equations, general  
 35K30 Higher-order equations, initial value problems  
 35K35 Higher-order equations, boundary value problems  
 35K40 Systems, general  
 35K45 Systems, initial value problems  
 35K50 Systems, boundary value problems  
 35K55 Nonlinear equations and systems  
 35K57 Reaction-diffusion equations  
 35K60 Nonlinear boundary value problems for linear equations and systems; boundary value problems for nonlinear equations and systems  
 35K65 Equations and systems of degenerate type  
 35K70 Ultraparabolic, pseudoparabolic problems  
 35K85 Unilateral problems; variational inequalities  
 [See also 35R35, 49A29.]  
 35K99 None of the above, but in this section
- 35Lxx Hyperbolic equations and systems**  
 [See also 58G16.]  
 35L05 Wave equation  
 35L10 Second-order equations, general  
 35L15 Second-order equations, initial value problems  
 35L20 Second-order equations, boundary value problems  
 35L25 Higher-order equations, general  
 35L30 Higher-order equations, initial value problems  
 35L35 Higher-order equations, boundary value problems  
 35L40 First-order systems, general  
 35L45 First-order systems, initial value problems  
 35L50 First-order systems, boundary value problems  
 35L55 Higher-order hyperbolic systems  
 35L60 First-order nonlinear equations and systems  
 35L65 Conservation laws [See also 76-XX.]  
 35L67 Shocks and singularities  
 35L70 Second-order nonlinear equations and systems  
 35L75 Higher ( $> 2$ ) order nonlinear equations and systems  
 35L80 Equations and systems of degenerate type  
 35L85 Unilateral problems; variational inequalities  
 [See also 35R35, 49A29.]  
 35L99 None of the above, but in this section
- 35M05 Equations and systems of mixed (Tricomi, etc.) or composite type** {For degenerate types, elliptic, see 35Jxx, parabolic, see 35Kxx, hyperbolic, see 35Lxx, etc.}
- 35Nxx Overdetermined systems** [See also 58G05, 58G07, 58Hxx.]  
 35N05 Constant coefficients  
 35N10 Variable coefficients, general  
 35N15  $\delta$ -Neumann problem and generalizations; formal complexes [See also 32Fxx and 58G05.]  
 35N99 None of the above, but in this section
- 35Pxx Spectral theory and eigenvalue problems**  
 [See also 47Axx, 47Bxx, 47F05.]  
 35P05 General spectral theory  
 35P10 Completeness of eigenfunctions, eigenfunction expansions  
 35P15 Estimation of eigenvalues, upper and lower bounds  
 35P20 Asymptotic distribution of eigenvalues and eigenfunctions  
 35P25 Scattering theory [See also 47A40.]  
 35P30 Nonlinear eigenvalue problems  
 35P99 None of the above, but in this section

**35Qxx Special equations and problems [See also 35J05, 35K05, 35L05.]**

35Q05 Euler-Poisson-Darboux equation and generalizations

35Q10 Navier-Stokes equations [See also 76D05.]

35Q15 Riemann-Hilbert problems [See also 30E25, 31A25, 31B20.]

35Q20 Particular equations of mathematical physics (Korteweg-de Vries, Burgers, etc.)

35Q99 None of the above, but in this section

**35Rxx Miscellaneous topics (For equations on manifolds, see 58Gxx; for manifolds of solutions, see 58Bxx; for stochastic PDEs, see also 60H15.)**

35R05 Equations with discontinuous coefficients or data

35R10 Difference-partial differential equations, equations with time lag

35R15 Equations on function spaces [See also 58D25.]

35R20 Operator equations, general [See also 34Gxx, 47A50, 47H15.]

35R25 Improperly posed problems

35R30 Inverse problems (undetermined coefficients, etc.)

35R35 Free boundary problems

35R45 Differential inequalities

35R50 Differential equations of infinite order

35R60 Equations and systems with randomness

35R99 None of the above, but in this section

**35Sxx Pseudodifferential operators [See also 47G05, 58G15.]**

35S05 General theory

35S10 Initial value problems

35S15 Boundary value problems

35S99 None of the above, but in this section

**39-XX FINITE DIFFERENCES AND FUNCTIONAL EQUATIONS**

39-00 Handbooks, dictionaries, and other reference works

39-01 Elementary exposition; textbooks

39-02 Advanced exposition (research surveys, monographs, etc.)

39-03 Historical (must also be assigned at least one classification number from Section 01)

39-04 Explicit machine computation and programs (not the theory of computation or programming)

39-06 Proceedings, conferences, etc.

**39Axx Finite differences [See also 65-XX.]**

39A05 General

39A10 Difference equations

39A11 Stability of difference equations

39A12 Discrete version of topics in analysis

39A70 Difference operators [See also 47B39.]

39A99 None of the above, but in this section

**39Bxx Functional equations [See also 30D05.]**

39B05 General

39B10 Equations containing iterates, equations of rank one

39B20 Equations for one unknown function of one variable, rank greater than one

39B30 Equations for several unknown functions of one variable, systems

39B40 Equations for functions of several variables

39B50 Functional equations on algebraic structures

39B60 Matrix functional equations

39B70 Functional equations on abstract spaces or structures

39B99 None of the above, but in this section

**39C05 Functional inequalities [See also 26Dxx.]****40-XX SEQUENCES, SERIES, SUMMABILITY**

40-00 Handbooks, dictionaries, and other reference works

40-01 Elementary exposition; textbooks

40-02 Advanced exposition (research surveys, monographs, etc.)

40-03 Historical (must also be assigned at least one classification number from Section 01)

40-04 Explicit machine computation and programs (not the theory of computation or programming)

40-06 Proceedings, conferences, etc.

**40Axx Convergence and divergence of infinite limiting processes**

40A05 Convergence and divergence of series and sequences

40A10 Convergence and divergence of integrals

40A15 Convergence and divergence of continued fractions [See also 30B70.]

40A20 Convergence and divergence of infinite products

40A25 Approximation to limiting values (summation of series, etc.) {For the Euler-Maclaurin summation formula, see 65B15.}

40A30 Convergence and divergence of series and sequences of functions

40A99 None of the above, but in this section

**40B05 Multiple sequences and series (should also be assigned at least one other classification number in this section)****40Cxx General summability methods**

40C05 Matrix methods

40C10 Integral methods

40C15 Function-theoretic methods (including power series methods and semicontinuous methods)

40C99 None of the above, but in this section

**40Dxx Direct theorems on summability**

40D05 General theorems

40D09 Structure of summability fields

40D10 Tauberian constants and oscillation limits

40D15 Convergence factors and summability factors

40D20 Summability and bounded fields of methods

40D25 Inclusion and equivalence theorems

40D99 None of the above, but in this section

**40Exx Inversion theorems**

40E05 Tauberian theorems, general

40E10 Growth estimates

40E15 Lacunary inversion theorems

40E20 Tauberian constants

40E99 None of the above, but in this section

**40F05 Absolute and strong summability****40Gxx Special methods of summability**

40G05 Cesàro, Euler, Nörlund and Hausdorff methods

40G10 Abel, Borel and power series methods

40G99 None of the above, but in this section

**40H05 Functional analytic methods in summability****40J05 Summability in abstract structures [See also 43A55, 46A35, 46B15.]****41-XX APPROXIMATIONS AND EXPANSIONS {For all approximation theory in the complex domain, see 30E05 and 30E10; for all trigonometric approximation and interpolation, see 42A10 and 42A15; for numerical approximation, see 65Dxx.}**

41-00 Handbooks, dictionaries, and other reference works

41-01 Elementary exposition; textbooks

41-02 Advanced exposition (research surveys, monographs, etc.)

41-03 Historical (must also be assigned at least one classification number from Section 01)

41-04 Explicit machine computation and programs (not the theory of computation or programming)

41-06 Proceedings, conferences, etc.

41A05 Interpolation [See also 42A15 and 65D05.]

41A10 Approximation by polynomials {For approximation by trigonometric polynomials, see 42A10.}

41A15 Spline approximation

41A17 Inequalities in approximation (Bernstein, Jackson, Nikol'skii type inequalities)

41A20 Approximation by rational functions

41A21 Padé approximation



- 41A25 Rate of convergence, degree of approximation
- 41A27 Inverse theorems
- 41A28 Simultaneous approximation
- 41A29 Approximation with constraints
- 41A30 Approximation by other special function classes
- 41A35 Approximation by operators (in particular, by integral operators)
- 41A36 Approximation by positive operators
- 41A40 Saturation
- 41A44 Best constants
- 41A45 Approximation by arbitrary linear expressions
- 41A46 Approximation by arbitrary nonlinear expressions; widths and entropy
- 41A50 Best approximation, including Chebyshev systems
- 41A52 Uniqueness of best approximation
- 41A55 Approximate quadratures
- 41A58 Series expansions (e.g. Taylor, Lidstone series, but not Fourier series)
- 41A60 Asymptotic approximations, asymptotic expansions (steepest descent, etc.) [See also 30E15.]
- 41A63 Multidimensional problems (should also be assigned at least one other classification number in this section)
- 41A65 Abstract approximation theory (approximation in normed linear spaces and other abstract spaces)
- 41A80 Remainders in approximation formulas
- 41A99 Miscellaneous topics

#### 42-XX FOURIER ANALYSIS

- 42-00 Handbooks, dictionaries, and other reference works
- 42-01 Elementary exposition; textbooks
- 42-02 Advanced exposition (research surveys, monographs, etc.)
- 42-03 Historical (must also be assigned at least one classification number from Section 01)
- 42-04 Explicit machine computation and programs (not the theory of computation or programming)
- 42-06 Proceedings, conferences, etc.
- 42Axx **Fourier analysis in one variable**
- 42A05 Trigonometric polynomials, inequalities, extremal problems
- 42A10 Trigonometric approximation
- 42A15 Trigonometric interpolation
- 42A16 Fourier coefficients, Fourier series of functions with special properties, special Fourier series
- 42A20 Convergence of Fourier and trigonometric series
- 42A24 Summability of Fourier and trigonometric series
- 42A28 Absolute convergence, absolute summability
- 42A32 Trigonometric series of special types (positive coefficients, monotonic coefficients, etc.)
- 42A38 Fourier and Fourier-Stieltjes transforms and other transforms of Fourier type
- 42A45 Multipliers
- 42A50 Conjugate functions, conjugate series, singular integrals
- 42A55 Lacunary series of trigonometric and other functions; Riesz products
- 42A61 Probabilistic methods
- 42A63 Uniqueness of trigonometric expansions, uniqueness of Fourier expansions, Riemann theory, localization
- 42A65 Completeness of sets of functions
- 42A70 Trigonometric moment problems
- 42A75 Classical almost periodic functions, mean periodic functions [See also 43A60.]
- 42A82 Positive definite functions
- 42A85 Convolution, factorization
- 42A99 None of the above, but in this section
- 42Bxx **Fourier analysis in several variables**
- 42B05 Fourier series and coefficients
- 42B10 Fourier and Fourier-Stieltjes transforms and other transforms of Fourier type
- 42B15 Multipliers
- 42B20 Singular integrals (Calderón-Zygmund, etc.)

- 42B25 Maximal functions, Littlewood-Paley theory
- 42B30  $H^p$ -spaces
- 42B99 None of the above, but in this section
- 42Cxx **Nontrigonometric Fourier analysis**
- 42C05 Orthogonal functions and polynomials, general theory [See also 33A65.]
- 42C10 Fourier series in special orthogonal functions (Legendre polynomials, Walsh functions, etc.)
- 42C15 Series of general orthogonal functions, generalized Fourier expansions, nonorthogonal expansions
- 42C20 Rearrangements and other transformations of Fourier and other orthogonal series
- 42C25 Uniqueness and localization for orthogonal series
- 42C30 Completeness of sets of functions
- 42C99 None of the above, but in this section

#### 43-XX ABSTRACT HARMONIC ANALYSIS {For other analysis on topological and Lie groups, see 22Exx.}

- 43-00 Handbooks, dictionaries, and other reference works
- 43-01 Elementary exposition; textbooks
- 43-02 Advanced exposition (research surveys, monographs, etc.)
- 43-03 Historical (must also be assigned at least one classification number from Section 01)
- 43-04 Explicit machine computation and programs (not the theory of computation or programming)
- 43-06 Proceedings, conferences, etc.
- 43A05 Measures on groups, semigroups, etc.
- 43A07 Means on groups, semigroups, etc.
- 43A10 Measure algebras on groups, semigroups, etc.
- 43A15  $L^p$ -spaces and other function spaces on groups, semigroups, etc.
- 43A17 Analysis on ordered groups,  $H^p$ -theory
- 43A20  $L^1$ -algebras on groups, semigroups, etc.
- 43A22 Homomorphisms and multipliers of function spaces on groups, semigroups, etc.
- 43A25 Fourier and Fourier-Stieltjes transforms on locally compact abelian groups
- 43A30 Fourier and Fourier-Stieltjes transforms on nonabelian groups and on semigroups, etc.
- 43A32 Other transforms and operators of Fourier type
- 43A35 Positive definite functions on groups, semigroups, etc.
- 43A40 Character groups and dual objects
- 43A45 Spectral synthesis on groups, semigroups, etc.
- 43A46 Special sets (thin sets, Kronecker sets, Helson sets, Ditkin sets, Sidon sets, etc.)
- 43A50 Convergence of Fourier series and of inverse transforms
- 43A55 Summability methods on groups, semigroups, etc. [See also 40J05.]
- 43A60 Almost periodic functions on groups and semigroups and their generalizations (recurrent functions, distal functions, etc.); almost automorphic functions
- 43A65 Representations of groups, semigroups, etc. [See also 22Dxx.]
- 43A70 Analysis on specific locally compact abelian groups [See also 11R56.]
- 43A75 Analysis on specific compact groups
- 43A77 Analysis on general compact groups
- 43A80 Analysis on other specific Lie groups [See also 22E30.]
- 43A85 Analysis on homogeneous spaces
- 43A90 Spherical functions [See also 22E45, 22E46.]
- 43A95 Categorical methods [See also 18-XX, 46Mxx.]
- 43A99 Miscellaneous topics

#### 44-XX INTEGRAL TRANSFORMS, OPERATIONAL CALCULUS {For fractional derivatives and integrals, see 26A33. For numerical methods, see 65R10.}

- 44-00 Handbooks, dictionaries, and other reference works
- 44-01 Elementary exposition; textbooks
- 44-02 Advanced exposition (research surveys, monographs, etc.)

- 44-03 Historical (must also be assigned at least one classification number from Section 01)
- 44-04 Explicit machine computation and programs (not the theory of computation or programming)
- 44-06 Proceedings, conferences, etc.
- 44A05 General transforms [See also 42A38.]
- 44A10 Laplace transform
- 44A15 Special transforms (Legendre, Hilbert, etc.)
- 44A20 Transforms of special functions
- 44A30 Multiple transforms
- 44A35 Convolution
- 44A40 Calculus of Mikusiński and other similar operational calculi
- 44A45 Classical operational calculus
- 44A55 Discrete operational calculus
- 44A60 Moment problems
- 44A99 Miscellaneous topics
- 45-XX INTEGRAL EQUATIONS**
- 45-00 Handbooks, dictionaries, and other reference works
- 45-01 Elementary exposition; textbooks
- 45-02 Advanced exposition (research surveys, monographs, etc.)
- 45-03 Historical (must also be assigned at least one classification number from Section 01)
- 45-04 Explicit machine computation and programs (not the theory of computation or programming)
- 45-06 Proceedings, conferences, etc.
- 45A05 Linear integral equations
- 45B05 Fredholm integral equations
- 45C05 Eigenvalue problems [See also 34B25, 35Pxx, 45P05.]
- 45D05 Volterra integral equations [See also 34A10.]
- 45Exx Singular integral equations [See also 30E20, 30E25, 44A15, 44A35.]
- 45E05 Integral equations with kernels of Cauchy type [See also 35J15.]
- 45E10 Integral equations of the convolution type (Abel, Picard, Toeplitz and Wiener-Hopf type) [See also 47B35.]
- 45E99 None of the above, but in this section
- 45Fxx Systems of linear integral equations
- 45F05 Systems of nonsingular linear integral equations
- 45F10 Dual, triple, etc., integral and series equations
- 45F15 Systems of singular linear integral equations
- 45F99 None of the above, but in this section
- 45Gxx Nonlinear integral equations [See also 47Hxx.]
- 45G05 Singular nonlinear integral equations
- 45G10 Other nonlinear integral equations
- 45H05 Miscellaneous special kernels [See also 44A15.]
- 45J05 Integro-ordinary differential equations
- 45K05 Integro-partial differential equations
- 45Lxx Approximation of solutions
- 45L05 Theoretical approximation of solutions
- 45L10 Numerical approximation of solutions {For numerical analysis, see 65R20.}
- 45L99 None of the above, but in this section
- 45Mxx Qualitative behavior
- 45M05 Asymptotics
- 45M10 Stability theory
- 45M99 None of the above, but in this section
- 45N05 Abstract integral equations, integral equations in abstract spaces
- 45P05 Integral operators [See also 47Axx, 47Bxx, 47G05.]

#### 46-XX FUNCTIONAL ANALYSIS {For manifolds modeled on topological linear spaces, see 57N20, 58Bxx.}

- 46-00 Handbooks, dictionaries, and other reference works
- 46-01 Elementary exposition; textbooks
- 46-02 Advanced exposition (research surveys, monographs, etc.)
- 46-03 Historical (must also be assigned at least one classification number from Section 01)
- 46-04 Explicit machine computation and programs (not the theory of computation or programming)
- 46-06 Proceedings, conferences, etc.
- 46Axx Topological linear spaces**
- 46A05 Locally convex spaces
- 46A06 Metrizable topological linear spaces and their duals (F-, DF-spaces, etc.)
- 46A07 Barrelled spaces
- 46A09 Bornological spaces
- 46A10 Locally bounded topological linear spaces
- 46A12 Spaces defined by special inductive or projective limits (LF-, nuclear, Schwartz, Silva spaces, etc.) [See also 46M10, 46M40.]
- 46A14 Spaces defined by compactness properties (Montel spaces, etc.)
- 46A15 Other topological linear spaces
- 46A20 Duality theory
- 46A22 Extension and lifting of functionals and operators [See also 46M10.]
- 46A25 Reflexivity and semi-reflexivity
- 46A30 Open mappings and closed graph theorems and completeness (including  $B_-$ ,  $B_+$ -completeness)
- 46A32 Spaces of linear operators
- 46A35 Summability and bases
- 46A40 Ordered topological linear spaces, vector lattices [See also 06F20, 46B30.]
- 46A45 Sequence spaces (including Köthe sequence spaces)
- 46A50 Compactness in topological linear spaces
- 46A55 Convexity, Choquet theory [See also 52A07.]
- 46A99 None of the above, but in this section
- 46Bxx Normed linear spaces and Banach spaces {For function spaces, see 46Exx.}**
- 46B05 Topology in terms of the norms
- 46B10 Duality and reflexivity
- 46B15 Summability and bases
- 46B20 Geometry and structure
- 46B22 Spaces with Radon-Nikodým property [See also 46G10.]
- 46B25 Classical Banach spaces in the general theory
- 46B30 Banach lattices [See also 46A40.]
- 46B99 None of the above, but in this section
- 46Cxx Inner product spaces, Hilbert spaces {For function spaces, see 46Exx.}**
- 46C05 Geometry and topology of the spaces
- 46C10 Other properties of such spaces
- 46C99 None of the above, but in this section
- 46D05 Spaces with indefinite inner product**
- 46Exx Linear function spaces and their duals** [See also 30H05; for function algebras, see 46J10.]
- 46E05 Lattices of continuous, differentiable or analytic functions
- 46E10 Topological linear spaces of continuous, differentiable or analytic functions
- 46E15 Banach spaces of continuous, differentiable or analytic functions
- 46E20 Hilbert spaces of continuous, differentiable or analytic functions
- 46E25 Rings and algebras of continuous, differentiable or analytic functions {For Banach function algebras, see 46J10, 46J15.}
- 46E27 Spaces of measures [See also 28A33.]

- 46E30 Spaces of measurable functions ( $L^p$ -spaces, Orlicz spaces, Köthe function spaces, Lorentz spaces, rearrangement invariant spaces, etc.)
- 46E35 Sobolev spaces and other spaces of "smooth" functions, imbedding theorems, trace theorems
- 46E39 Sobolev (and similar kinds of) spaces of functions of discrete variables
- 46E40 Spaces of vector- and operator-valued functions
- 46E99 None of the above, but in this section
- 46Fxx Distributions, generalized functions, distribution spaces {For distribution theory on nonlinear spaces, see 58Cxx.}**
- 46F05 Topological linear spaces of test functions and distributions
- 46F10 Operations with distributions
- 46F12 Integral transforms in distribution spaces [See also 42-XX, 44-XX.]
- 46F15 Hyperfunctions, analytic functionals [See also 32A25, 32A45, 32C35, 58G07.]
- 46F20 Distributions as boundary values of analytic functions [See also 30Exx, 32A40.]
- 46F25 Distributions on infinite-dimensional spaces [See also 58C35.]
- 46F99 None of the above, but in this section
- 46Gxx Measures, integration, derivative, holomorphy {For integration on infinite-dimensional spaces, see 28C20; for nonlinear functional analysis, see 58-XX, especially 58Cxx.}**
- 46G05 Derivatives
- 46G10 Vector-valued measures and integration [See also 28Bxx, 46B22.]
- 46G12 Measures and integration on abstract linear spaces [See also 28Cxx.]
- 46G15 Lifting theory [See also 28A51.]
- 46G20 Infinite-dimensional holomorphy [See also 32-XX, 58B12, 58C10.]
- 46G99 None of the above, but in this section
- 46Hxx Topological algebras, normed rings and algebras, Banach algebras {For group algebras, convolution algebras and measure algebras, see 43-XX.}**
- 46H05 General theory
- 46H10 Ideals and subalgebras
- 46H15 Representations
- 46H20 Structure, classification
- 46H25 Normed modules and Banach modules, topological modules (if not placed in 13-XX or 16-XX)
- 46H30 Functional calculus [See also 47A60.]
- 46H70 Jordan-Banach algebras, Banach-Lie algebras
- 46H99 None of the above, but in this section
- 46Jxx Commutative Banach algebras and commutative topological algebras**
- 46J05 General theory
- 46J10 Banach algebras of continuous functions, function algebras
- 46J15 Banach algebras of differentiable or analytic functions,  $H^p$ -spaces [See also 30D55, 30H05, 32A35, 32E25, 42B30.]
- 46J20 Ideals, maximal ideals, boundaries
- 46J25 Representations
- 46J30 Subalgebras
- 46J35 Structure, classification
- 46J99 None of the above, but in this section
- 46Kxx Rings and algebras with an involution**
- 46K05 General theory
- 46K10 Representations
- 46K15 Hilbert algebras
- 46K99 None of the above, but in this section
- 46Lxx  $C^*$ -algebras and von Neumann ( $W^*$ -) algebras [See also 22D25.]**
- 46L05  $C^*$ -algebras, general theory
- 46L10 von Neumann algebras, general theory
- 46L30 States
- 46L35 Classifications, factors
- 46L40 Automorphisms, derivations
- 46L45 Decomposition theory
- 46L50 Noncommutative integration, noncommutative probability
- 46L55 Noncommutative dynamical systems [See also 28Dxx.]
- 46L60 Applications to physics
- 46L70 Jordan algebras, Lie algebras [See also 46H70.]
- 46L80  $K$ -theory and operator algebras [See also 18Fxx, 19Kxx, 46M20, 55Rxx.]
- 46L99 None of the above, but in this section
- 46Mxx Categorical methods [See also 18-XX.]**
- 46M05 Tensor products
- 46M10 Projective and injective objects
- 46M15 Functors {For  $K$ -theory and EXT, see 19K33, 46L80, 46M20.}
- 46M20 Methods of algebraic topology (cohomology, sheaf and bundle theory, etc.) [See also 14F05, 18Fxx, 19-XX, 46L80, 55Rxx.]
- 46M35 Abstract interpolation of topological vector spaces
- 46M40 Inductive and projective limits [See also 46A12.]
- 46M99 None of the above, but in this section
- 46N05 Miscellaneous applications of functional analysis**
- 46P05 Functional analysis over fields other than  $\mathbb{R}$  or  $\mathbb{C}$ ; non-Archimedean functional analysis [See also 12J25, 32E27.]**
- 46Q05 Nonstandard functional analysis [See also 03Hxx.]**
- 46R05 Constructive functional analysis [See also 03Fxx.]**
- 47-XX OPERATOR THEORY**
- 47-00 Handbooks, dictionaries, and other reference works
- 47-01 Elementary exposition; textbooks
- 47-02 Advanced exposition (research surveys, monographs, etc.)
- 47-03 Historical (must also be assigned at least one classification number from Section 01)
- 47-04 Explicit machine computation and programs (not the theory of computation or programming)
- 47-06 Proceedings, conferences, etc.
- 47Axx Single linear operators: general theory**
- 47A05 General (adjoints, conjugates, products, inverses, domains, ranges, etc.)
- 47A10 Spectrum, resolvent
- 47A12 Numerical range
- 47A15 Invariant subspaces
- 47A20 Dilations, extensions, compressions
- 47A25 Spectral sets
- 47A30 Norms (inequalities, more than one norm, etc.)
- 47A35 Ergodic theory [See also 28Dxx.]
- 47A40 Scattering theory [See also 34B25, 35P25, 47Dxx.]
- 47A45 Canonical models for contractions and nonselfadjoint operators
- 47A50 Equations involving linear operators, with vector unknowns
- 47A53 Fredholm operators
- 47A55 Perturbation theory
- 47A56 Functions whose values are linear operators (operator and matrix pencils, etc.)
- 47A60 Functional calculus
- 47A62 Equations involving linear operators, with operator unknowns
- 47A65 Structure theory
- 47A66 (Non)quasitriangular, (non)quasidiagonal operators
- 47A67 Representation theory
- 47A68 Factorization theory



- 47A70 Eigenfunction expansions, rigged Hilbert spaces; eigenvalue problems in general [See also 49Gxx.]
- 47A99 None of the above, but in this section
- 47Bxx Single linear operators: special classes of operators**
- 47B05 Compact operators, Riesz operators
- 47B10 Hilbert-Schmidt operators, trace class operators, nuclear operators,  $p$ -summing operators, etc.
- 47B15 Hermitian and normal operators (spectral measures, functional calculus, etc.)
- 47B20 Subnormal operators, hyponormal operators, etc.
- 47B25 Symmetric and selfadjoint operators (unbounded)
- 47B35 Toeplitz operators, Wiener-Hopf operators [See also 45P05, 47G05 for other integral operators.]
- 47B37 Operators on special spaces (weighted shifts, operators on sequence spaces, etc.)
- 47B38 Operators on function spaces
- 47B39 Difference operators [See also 39A70.]
- 47B40 Spectral operators, decomposable operators, etc.
- 47B44 Accretive operators, dissipative operators, etc.
- 47B47 Commutators, derivations
- 47B50 Operators on a space with an indefinite metric
- 47B55 Operators on ordered spaces
- 47B99 None of the above, but in this section
- 47Cxx Single linear operators as elements of algebraic systems**
- 47C05 Operators in algebras
- 47C10 Operators in  $\ast$ -algebras
- 47C15 Operators in  $C^\ast$ - or von Neumann algebras
- 47C99 None of the above, but in this section
- 47Dxx Algebraic systems of linear operators** [See also 46Lxx.]
- 47D05 Semigroups of operators {For nonlinear operators, see 47H20; see also 20M20.}
- 47D07 Markov semigroups {For Markov processes, see 60Jxx.}
- 47D10 Groups of operators
- 47D15 Linear spaces of operators
- 47D20 Convex sets and cones of operators
- 47D25 Operator algebras and ideals, on Hilbert space
- 47D30 Operator algebras and ideals, on Banach spaces and other linear topological spaces
- 47D35 Dual spaces of operator algebras and topological groups
- 47D40 Algebras of unbounded operators
- 47D45 Applications to physics
- 47D99 None of the above, but in this section
- 47E05 Ordinary differential operators** [See also 34B25, 58Fxx.]
- 47F05 Partial differential operators** [See also 35Pxx, 58Gxx.]
- 47G05 Integral, integro-differential, and pseudodifferential operators** [See also 35Sxx, 45P05, 58Gxx.]
- 47Hxx Nonlinear operators** {For global and geometric aspects, see 58-XX, especially 58Cxx.}
- 47H05 Monotone operators
- 47H06 Accretive operators, dissipative operators, etc.
- 47H07 Monotone and positive operators on ordered Banach spaces or other ordered topological vector spaces
- 47H09 Nonexpansive mappings, ultimately compact mappings,  $A$ -proper mappings,  $K$ -set contractions, etc.
- 47H10 Fixed-point theorems [See also 34C29, 54H25, 55M20, 58C30.]
- 47H12 Spectral theory of nonlinear operators
- 47H15 Equations involving nonlinear operators [See also 58E07 for abstract bifurcation theory.]
- 47H17 Methods for solving equations involving nonlinear operators {For numerical analysis, see 65J15.}
- 47H20 Semigroups of nonlinear operators [See also 58D07.]
- 47H99 None of the above, but in this section

# 49-XX CALCULUS OF VARIATIONS AND OPTIMAL CONTROL; OPTIMIZATION [See also 34H05, 65Kxx, 90Cxx, 93-XX.]

- 49-00 Handbooks, dictionaries, and other reference works
- 49-01 Elementary exposition; textbooks
- 49-02 Advanced exposition (research surveys, monographs, etc.)
- 49-03 Historical (must also be assigned at least one classification number from Section 01)
- 49-04 Explicit machine computation and programs (not the theory of computation or programming)
- 49-06 Proceedings, conferences, etc.
- 49Axx Existence theory for optimal solutions**
- 49A05 Free problems in one independent variable
- 49A10 Problems involving ordinary differential equations, optimal control
- 49A21 Free problems in two or more independent variables
- 49A22 Problems involving partial differential equations, optimal control
- 49A27 Problems in abstract spaces
- 49A29 Variational inequalities
- 49A34 Problems involving functional relations other than differential equations
- 49A36 Optimal solutions belonging to restricted classes (bang-bang controls, etc.)
- 49A40 Minimax problems
- 49A45 Game theory; pursuit and evasion [See also 90Dxx.]
- 49A50 Topology of solutions, weak and strong minima, semicontinuity, convexity, orientor fields
- 49A51 Fréchet and Gâteaux differentiability
- 49A52 Nonsmooth analysis [See also 58Cxx.]
- 49A55 Duality theory
- 49A60 Optimal stochastic control [See also 93Exxx.]
- 49A99 None of the above, but in this section
- 49Bxx Necessary conditions and sufficient conditions for optimality**
- 49B05 Free problems in one independent variable
- 49B10 Problems involving ordinary differential equations, optimal control
- 49B21 Free problems in two or more independent variables
- 49B22 Problems involving partial differential equations, optimal control
- 49B27 Problems in abstract spaces
- 49B34 Problems involving functional relations other than differential equations
- 49B36 Optimal solutions belonging to restricted classes
- 49B40 Minimax problems
- 49B50 Sensitivity of optimal solutions in the presence of perturbations
- 49B60 Optimal stochastic control [See also 93Exxx.]
- 49B99 None of the above, but in this section
- 49Cxx Carathéodory, Hamilton-Jacobi theories, including dynamic programming** [See also 90C39.]
- 49C05 Free problems and problems involving ordinary differential equations
- 49C10 Free problems and problems involving partial differential equations
- 49C15 Problems in abstract spaces or involving functional relations other than differential equations
- 49C20 Dynamic programming method
- 49C99 None of the above, but in this section
- 49Dxx Methods of successive approximations** {For discrete problems, see 90Cxx; see also 65Kxx.}
- 49D05 Methods based on necessary conditions
- 49D07 Gradient methods
- 49D10 Methods of steepest descent type
- 49D15 Methods of Newton-Raphson, Galerkin and Ritz types
- 49D20 Methods of relaxation type
- 49D25 Finite difference methods
- 49D27 Decomposition methods

- 49D29 Multiplier methods  
 49D30 Other methods, not based on necessary conditions (penalty function, etc.)  
 49D35 Methods of linear programming type  
 49D37 Nonlinear programming  
 49D39 Semi-infinite programming  
 49D40 Methods of quadratic programming type  
 49D45 Methods of convex programming type  
 49D49 Geometric programming  
 49D50 Periodic optimization  
 49D99 None of the above, but in this section
- 49Exx Controllability and geometry of control problems**  
 49E05 General dependence on controls  
 49E10 Orientor fields (contingency equations)  
 49E15 Attainable sets, controllability  
 49E20 Interrelations between stability problems and optimization problems  
 49E25 Effect of perturbations on controllability  
 49E30 Relations between controllability and optimal solutions  
 49E99 None of the above, but in this section
- 49Fxx Manifolds [See also 58Exx.]**  
 49F05 Exterior differential forms, invariant integrals (Cartan theory) [See mainly 58A15.]  
 49F10 Minimal surfaces [See mainly 53A10, also 58E12.]  
 49F15 Morse theory in Hilbert and other spaces [See also 57R27, 58Exx.]  
 49F20 Geometric measure and integration theory, integral and normal currents, flat chains and cochains, varifolds [See also 28A75, 32C30, 58A25, 58C35.]  
 49F22 Existence and structure of solutions to variational problems in geometric measure-theoretic setting  
 49F25 Surface area; Weierstrass and Burkil integrals, subadditive set functions  
 49F99 None of the above, but in this section
- 49Gxx Variational methods for eigenvalues [See also 47A70.]**  
 49G05 Variational approach to eigenvalues  
 49G10 Rayleigh-Ritz methods  
 49G15 Weinstein and Aronszajn methods, intermediate problems  
 49G20 Linear operators in Hilbert spaces  
 49G99 None of the above, but in this section
- 49H05 Variational principles of physics [See also 70-XX, 81-XX.]**
- 51-XX GEOMETRY (For algebraic geometry, see 14-XX.)**  
 51-00 Handbooks, dictionaries, and other reference works  
 51-01 Elementary exposition; textbooks  
 51-02 Advanced exposition (research surveys, monographs, etc.)  
 51-03 Historical (must also be assigned at least one classification number from Section 01)  
 51-04 Explicit machine computation and programs (not the theory of computation or programming)  
 51-06 Proceedings, conferences, etc.
- 51Axx Linear incidence geometry**  
 51A05 General theory and projective geometries  
 51A10 Homomorphism, automorphism and dualities  
 51A15 Structures with parallelism  
 51A20 Configuration theorems  
 51A25 Algebraization [See also 12Kxx, 20N10.]  
 51A30 Desarguesian and Pappian geometries  
 51A35 Non-Desarguesian affine and projective planes  
 51A40 Translation planes and spreads  
 51A45 Incidence structures imbeddable into projective geometries  
 51A99 None of the above, but in this section
- 51Bxx Nonlinear incidence geometry**  
 51B05 General theory  
 51B10 Möbius geometries  
 51B15 Laguerre geometries
- 51B20 Minkowski geometries  
 51B25 Lie geometries  
 51B99 None of the above, but in this section
- 51C05 Ring geometry (Hjelmslev, Barbillan, etc.)**
- 51Dxx Geometric closure systems**  
 51D05 Abstract (Maeda) geometries  
 51D10 Abstract geometries with exchange axiom  
 51D15 Abstract geometries with parallelism  
 51D20 Combinatorial geometries [See also 05B25.]  
 51D25 Lattices of subspaces [See also 05B35.]  
 51D30 Continuous geometries and related topics [See also 06Cxx.]  
 51D99 None of the above, but in this section
- 51Exx Finite geometry**  
 51E05 General block designs [See also 05B05.]  
 51E10 Steiner systems  
 51E15 Affine and projective planes  
 51E20 Combinatorial structures in finite projective spaces [See also 05Bxx.]  
 51E25 Finite nonlinear geometries  
 51E30 Other finite incidence structures [See also 05B30.]  
 51E99 None of the above, but in this section
- 51Fxx Metric geometry**  
 51F05 Absolute planes  
 51F10 Absolute spaces  
 51F15 Reflection groups, reflection geometries [See also 20H10, 20H15.]  
 51F20 Congruence and orthogonality [See also 20H05.]  
 51F25 Orthogonal and unitary groups [See also 20H05.]  
 51F99 None of the above, but in this section
- 51G05 Ordered geometries (ordered incidence structures, etc.)**
- 51Hxx Topological geometry**  
 51H05 General theory  
 51H10 Topological linear incidence structures  
 51H15 Topological nonlinear incidence structures  
 51H20 Topological geometries on manifolds [See also 57-XX.]  
 51H25 Geometries with differentiable structure [See also 53Cxx, 53C70.]  
 51H30 Geometries with algebraic manifold structure [See also 14-XX.]  
 51H99 None of the above, but in this section
- 51Jxx Incidence groups**  
 51J05 General theory  
 51J10 Projective incidence groups  
 51J15 Kinematic spaces  
 51J20 Representation by near-fields and near-algebras [See also 12K05, 16A76.]  
 51J99 None of the above, but in this section
- 51Kxx Distance geometry**  
 51K05 General theory  
 51K10 Synthetic differential geometry  
 51K99 None of the above, but in this section
- 51Lxx Geometric order structures [See also 53C75.]**  
 51L05 Geometry of orders of nondifferentiable curves  
 51L10 Directly differentiable curves  
 51L15  $n$ -vertex theorems via direct methods  
 51L20 Geometry of orders of surfaces  
 51L99 None of the above, but in this section
- 51Mxx Real and complex geometry**  
 51M05 Euclidean geometries  
 51M10 Hyperbolic and elliptic geometries  
 51M15 Geometric constructions  
 51M20 Polyhedra and polytopes; regular figures, division of spaces [See also 51F15.]  
 51M25 Length, area and volume [See also 26B15.]  
 51M30 Line geometries and their generalizations  
 51M35 Synthetic treatment of fundamental manifolds in projective geometries (Grassmannians, Veronesians and their generalizations) [See also 14M15.]

- 51M99 None of the above, but in this section
- 51Nxx Analytic and descriptive geometry**
- 51N05 Descriptive geometry
- 51N10 Affine analytic geometry
- 51N15 Projective analytic geometry
- 51N20 Euclidean analytic geometry
- 51N25 Analytic geometry with other transformation groups
- 51N30 Geometry of classical groups [See also 20Gxx, 14Lxx.]
- 51N35 Questions of classical algebraic geometry [See also 14Nxx.]
- 51N99 None of the above, but in this section
- 52-XX CONVEX SETS AND RELATED GEOMETRIC TOPICS**
- 52-00 Handbooks, dictionaries, and other reference works
- 52-01 Elementary exposition; textbooks
- 52-02 Advanced exposition (research surveys, monographs, etc.)
- 52-03 Historical (must also be assigned at least one classification number from Section 01)
- 52-04 Explicit machine computation and programs (not the theory of computation or programming)
- 52-06 Proceedings, conferences, etc.
- 52A01 Axiomatic and generalized convexity
- 52A05 Convex sets without dimension restrictions
- 52A07 Convex sets in topological vector spaces [See also 46A55.]
- 52A10 Convex sets in 2 dimensions
- 52A15 Convex sets in 3 dimensions
- 52A20 Convex sets in  $n$  dimensions
- 52A22 Random convex sets and integral geometry [See also 53C65, 60D05.]
- 52A25 Polyhedra and polytopes
- 52A30 Invariants of convex sets (star-shaped,  $(m, n)$ -convex, etc.)
- 52A35 Helly-type theorems
- 52A37 Other problems of combinatorial geometry
- 52A40 Inequalities and extremum problems
- 52A43 Lattices and convex bodies [See also 11H06.]
- 52A45 Packing, covering, tiling [See also 05B40, 05B45, 11H31, 51-XX.]
- 52A50 Hilbert geometry [See also 51Kxx.]
- 52A55 Spherical and hyperbolic convexity
- 52A99 Miscellaneous topics
- 53-XX DIFFERENTIAL GEOMETRY {For differential topology, see 57Rxx. For foundational questions of differentiable manifolds, see 58Axx.}**
- 53-00 Handbooks, dictionaries, and other reference works
- 53-01 Elementary exposition; textbooks
- 53-02 Advanced exposition (research surveys, monographs, etc.)
- 53-03 Historical (must also be assigned at least one classification number from Section 01)
- 53-04 Explicit machine computation and programs (not the theory of computation or programming)
- 53-06 Proceedings, conferences, etc.
- 53Axx Classical differential geometry**
- 53A04 Curves in Euclidean space
- 53A05 Surfaces in Euclidean space
- 53A07 Higher-dimension and -codimension surfaces in Euclidean  $n$ -space
- 53A10 Minimal surfaces, surfaces with prescribed mean curvature [See also 49F10, 53C42.]
- 53A15 Affine differential geometry
- 53A17 Kinematics
- 53A20 Projective differential geometry
- 53A25 Differential line geometry
- 53A30 Conformal differential geometry
- 53A35 Non-Euclidean differential geometry
- 53A40 Other special differential geometries
- 53A45 Vector and tensor analysis
- 53A50 Spinor analysis
- 53A55 Differential invariants (local theory), geometric objects
- 53A60 Geometry of webs [See also 14C21, 20N05.]
- 53A99 None of the above, but in this section
- 53Bxx Local differential geometry**
- 53B05 Linear and affine connections
- 53B10 Projective connections
- 53B15 Other connections
- 53B20 Local Riemannian geometry
- 53B21 Methods of Riemannian geometry
- 53B25 Local submanifolds [See also 53C40.]
- 53B30 Lorentz metrics, indefinite metrics
- 53B35 Hermitian and Kählerian structures [See also 32Cxx.]
- 53B40 Finsler spaces and generalizations (areal metrics)
- 53B50 Applications to physics
- 53B75 Geometric orders, order geometry [See also 51Lxx.]
- 53B99 None of the above, but in this section
- 53Cxx Global differential geometry [See also 51H25, 58-XX; for related bundle theory, see 55Rxx, 57Rxx.]**
- 53C05 Connections
- 53C10  $G$ -structures
- 53C12 Foliations [See also 57R30, 57R32.]
- 53C15 Almost complex, contact, symplectic, almost product structures, etc.
- 53C20 Riemannian manifolds, including pinching [See also 31C12, 58B20.]
- 53C21 Methods of Riemannian geometry
- 53C22 Geodesics [See also 58E10.]
- 53C25 Special Riemannian manifolds (Einstein, Sasakian, etc.)
- 53C30 Homogeneous manifolds [See also 14M15, 14M17, 32M10, 57T15.]
- 53C35 Symmetric spaces [See also 32M15, 57T15.]
- 53C40 Submanifolds [See also 53B25.]
- 53C42 Immersions (minimal, prescribed curvature, tight, etc.) [See also 49F10, 53A10, 57R40, 57R42.]
- 53C45 Global surface theory (convex surfaces à la A. D. Aleksandrov)
- 53C50 Lorentz manifolds, manifolds with indefinite metrics
- 53C55 Hermitian and Kählerian manifolds [See also 32Cxx.]
- 53C57 Symplectic manifolds and structures in geometry and physics (use only for secondary classification)
- 53C60 Finsler spaces and generalizations (areal metrics) [See also 58B20.]
- 53C65 Integral geometry [See also 52A22, 60D05.]; differential forms, currents, etc. [See mainly 58Axx.]
- 53C70 Direct methods ( $G$ -spaces of Busemann, etc.)
- 53C75 Geometric orders, order geometry [See also 51Lxx.]
- 53C80 Applications to physics
- 53C99 None of the above, but in this section
- 54-XX GENERAL TOPOLOGY {For the topology of manifolds of all dimensions, see 57Nxx.}**
- 54-00 Handbooks, dictionaries, and other reference works
- 54-01 Elementary exposition; textbooks
- 54-02 Advanced exposition (research surveys, monographs, etc.)
- 54-03 Historical (must also be assigned at least one classification number from Section 01)
- 54-04 Explicit machine computation and programs (not the theory of computation or programming)
- 54-06 Proceedings, conferences, etc.
- 54Axx Generalities**
- 54A05 Topological spaces and generalizations (closure spaces, etc.)
- 54A10 Change of topology, comparison of topologies
- 54A15 Syntopogeneous structures
- 54A20 Convergence (general theory) and limits
- 54A25 Cardinality properties (discrete subsets, weight, etc.), ultrafilters, etc. [See also 03Exx, 04A30.]
- 54A35 Consistency and independence results [See also 03E35.]



- 54A40 Fuzzy topology [See also 03E72.]  
 54A99 None of the above, but in this section
- 54Bxx Basic constructions**  
 54B05 Subspaces  
 54B10 Product spaces  
 54B15 Quotient spaces, decompositions  
 54B17 Adjunction spaces and similar constructions  
 54B20 Hyperspaces  
 54B25 Sums, inverse limits  
 54B30 Categorical methods [See also 18B30.]  
 54B35 Spectra  
 54B40 Presheaves and sheaves [See also 18F20.]  
 54B99 None of the above, but in this section
- 54Cxx Maps and general types of spaces defined by maps**  
 54C05 Continuous maps  
 54C08 Connectivity maps, semicontinuous maps, etc.  
 54C10 Special maps: open, closed, perfect, almost open, light, etc.  
 54C15 Retraction  
 54C20 Extension  
 54C25 Imbedding  
 54C30 Real-valued functions [See also 26-XX.]  
 54C35 Function spaces [See also 58D15.]  
 54C40  $C(X)$ ; algebraic techniques (ideals, etc.) [See also 46J10.]  
 54C45  $C$ - and  $C^*$ -imbedding  
 54C50 Zero sets, Baire sets and functions [See also 26A21.]  
 54C55 Absolute neighborhood extensor, absolute extensor, absolute neighborhood retract (ANR), absolute retract spaces (general properties) [See also 54F40, 55M15.]  
 54C56 Shape theory [See mainly 55P55, 57N25.]  
 54C60 Set-valued maps [See also 26E25, 28B20.]  
 54C65 Selections [See also 28B20.]  
 54C70 Entropy  
 54C99 None of the above, but in this section
- 54Dxx Fairly general properties**  
 54D05 Connected and locally connected spaces (general aspects)  
 54D10 Separation axioms,  $T_0$  -  $T_3$   
 54D15 Higher separation axioms (completely regular, normal, perfectly or collectionwise normal, etc.)  
 54D18 Paracompactness, pointwise paracompactness, etc.  
 54D20 Covering properties: Lindelöf,  $(m, n)$ -compact, etc.  
 54D25 " $P$ -minimal" and " $P$ -closed" spaces  
 54D30 Compact spaces and generalizations  
 54D35 Compactifications, etc.  
 54D40 Remainders  
 54D45 Local compactness,  $\sigma$ -compactness  
 54D50  $k$ -spaces  
 54D55 Sequential spaces  
 54D60 Realcompactness and realcompactification  
 54D99 None of the above, but in this section
- 54Exx Spaces with richer structures**  
 54E05 Proximity structures and generalizations  
 54E10  $p$ -maps  
 54E15 Uniform structures and generalizations  
 54E17 Nearness spaces  
 54E18  $p$ -spaces,  $M$ -spaces,  $\sigma$ -spaces, etc.  
 54E20 Stratifiable spaces, cosmic spaces, etc.  
 54E25 Semimetric spaces  
 54E30 Moore spaces  
 54E35 Metric spaces, metrizability  
 54E40 Isometries, contractions, expansions  
 54E45 Compact (locally compact) metric spaces  
 54E50 Complete metric spaces  
 54E52 Completions, Baire category  
 54E55 Bitopologies  
 54E60 CW-complexes, triangulable spaces  
 54E65 Countability conditions, separability  
 54E99 None of the above, but in this section
- 54Fxx Special properties**  
 54F05 Ordered topological spaces, partially ordered spaces [See also 06B30, 06F30.]  
 54F15 Continua and generalizations  
 54F20 Special types of continua  
 54F25 Peano spaces and generalizations  
 54F30 Cyclic elements  
 54F35 Higher dimensional local connectedness [See also 55Mxx, 55Nxx.]  
 54F40 Compact (locally compact) absolute neighborhood retracts  
 54F43 Shape theory [See mainly 55P55, 57N25.]  
 54F45 Dimension theory [See also 55M10.]  
 54F50 Spaces of dimension  $\leq 1$ ; curves, dendrites [See also 26A03.]  
 54F55 Unicoherence, multicoherence  
 54F60 Maps into  $S_n$   
 54F62 Periodic maps  
 54F65 Topological characterizations of particular spaces  
 54F99 None of the above, but in this section
- 54Gxx Peculiar spaces**  
 54G05 Extremely disconnected spaces,  $F$ -spaces, etc.  
 54G10  $P$ -spaces  
 54G15 Pathological spaces  
 54G20 Counterexamples  
 54G99 None of the above, but in this section
- 54Hxx Connections with other structures, applications**  
 54H05 Descriptive set theory (topological aspects of Borel, analytic, projective, etc. sets) [See also 03E15, 04A15, 26A21, 28A05.]  
 54H10 Topological representations of algebraic systems [See also 22-XX.]  
 54H12 Topological lattices, etc. [See also 06B30, 06F30.]  
 54H13 Topological fields, rings, etc. {For algebraic aspects, see 12Jxx, 13Jxx, 16A80.}  
 54H15 Transformation groups and semigroups [See also 20M20, 22-XX, 57Sxx.]  
 54H20 Topological dynamics [See also 28Dxx, 34C35, 58Fxx.]  
 54H25 Fixed-point and coincidence theorems [See also 47H10, 55M20.]  
 54H99 None of the above, but in this section
- 54J05 Nonstandard topology [See also 03Hxx.]**
- 55-XX ALGEBRAIC TOPOLOGY**  
 55-00 Handbooks, dictionaries, and other reference works  
 55-01 Elementary exposition; textbooks  
 55-02 Advanced exposition (research surveys, monographs, etc.)  
 55-03 Historical (must also be assigned at least one classification number from Section 01)  
 55-04 Explicit machine computation and programs (not the theory of computation or programming)  
 55-06 Proceedings, conferences, etc.
- 55Mxx Classical topics {For the topology of Euclidean spaces and manifolds, see 57N05, 57N10, 57N15.}**  
 55M05 Duality  
 55M10 Dimension theory [See also 54F45.]  
 55M15 Absolute neighborhood retracts [See also 54C55, 54F40.]  
 55M20 Fixed points and coincidences [See also 54H25.]  
 55M25 Degree, winding number  
 55M30 Lusternik-Schnirelman (Lusternik-Shnirel'man) category of a space  
 55M35 Finite groups of transformations (including Smith theory) [See also 57S17.]  
 55M99 None of the above, but in this section
- 55Nxx Homology and cohomology theories [See also 57Txx.]**  
 55N05 Čech types  
 55N07 Steenrod-Sitnikov homologies  
 55N10 Singular theory

- 55N15 *K*-theory [See also 19Lxx.] {For algebraic *K*-theory, see 18F25, 19-XX.}
- 55N20 Generalized (extraordinary) homology and cohomology theories
- 55N22 Bordism and cobordism theories, formal group laws [See also 14L05, 19L41, 57R75, 57R77, 57R85, 57R90.]
- 55N25 Homology with local coefficients, equivariant cohomology
- 55N30 Sheaf cohomology [See also 18F20, 32C35, 32L10.]
- 55N35 Other homology theories
- 55N40 Axioms for homology theory and uniqueness theorems
- 55N45 Products and intersections
- 55N91 Equivariant homology and cohomology
- 55N99 None of the above, but in this section
- 55Pxx Homotopy theory {For simple homotopy type, see 57Q10.}**
- 55P05 Homotopy extension properties, cofibrations
- 55P10 Homotopy equivalences
- 55P15 Classification of homotopy type
- 55P20 Eilenberg-Mac Lane spaces
- 55P25 Spanier-Whitehead duality
- 55P30 Eckmann-Hilton duality
- 55P35 Loop spaces
- 55P40 Suspensions
- 55P42 Stable homotopy theory, spectra
- 55P45 *H*-spaces and duals
- 55P47 Infinite loop spaces
- 55P50 Category and cocategory, etc.
- 55P55 Shape theory [See also 54C56, 54F43, 55Q07.]
- 55P60 Localization and completion
- 55P62 Rational homotopy theory
- 55P65 Homotopy functors
- 55P91 Equivariant homotopy theory
- 55P99 None of the above, but in this section
- 55Qxx Homotopy groups**
- 55Q05 Homotopy groups, general; sets of homotopy classes
- 55Q07 Shape groups
- 55Q10 Stable homotopy groups
- 55Q15 Whitehead products and generalizations
- 55Q20 Homotopy groups of wedges, joins, and simple spaces
- 55Q25 Hopf invariants
- 55Q30 Homotopy groups of triads, *n*-ads
- 55Q35 Operations in homotopy groups
- 55Q40 Homotopy groups of spheres
- 55Q45 Stable homotopy
- 55Q50 The *J*-morphism [See also 19L20.]
- 55Q52 Homotopy groups of special spaces
- 55Q55 Cohomotopy groups
- 55Q70 Homotopy groups of special types [See also 55N05, 55N07.]
- 55Q91 Equivariant homotopy groups
- 55Q99 None of the above, but in this section
- 55Rxx Fiber spaces and bundles [See also 18F15, 32Lxx, 46M20, 57R20, 57R22, 57R25.]**
- 55R05 Fiber spaces
- 55R10 Fiber bundles
- 55R12 Transfer
- 55R15 Classification
- 55R20 Spectral sequences and homology of fiber spaces [See also 55Txx.]
- 55R25 Sphere bundles and vector space bundles
- 55R35 Classifying spaces of groups and *H*-spaces
- 55R40 Homology of classifying spaces, characteristic classes [See also 57Txx, 57R20.]
- 55R45 Homology and homotopy of *BO* and *BU*; Bott periodicity [See also 19L99.]
- 55R50 Stable classes of vector space bundles, *K*-theory [See also 19L99.] {For algebraic *K*-theory, see 18F25, 19-XX.}
- 55R55 Fiberings with singularities
- 55R60 Microbundles and block bundles [See also 57N55, 57Q50.]
- 55R65 Generalizations of fiber spaces and bundles
- 55R91 Equivariant fiber spaces and bundles
- 55R99 None of the above, but in this section
- 55Sxx Operations and obstructions**
- 55S05 Primary cohomology operations
- 55S10 Steenrod algebra
- 55S12 Dyer-Lashof operations
- 55S15 Symmetric products, cyclic products
- 55S20 Secondary and higher cohomology operations
- 55S25 *K*-theory operations and generalized cohomology operations [See also 19D99, 19L99.]
- 55S30 Massey products
- 55S35 Obstruction theory
- 55S36 Extension and compression of mappings
- 55S37 Classification of mappings
- 55S40 Sectioning fiber spaces and bundles
- 55S45 Postnikov systems, *k*-invariants
- 55S91 Equivariant operations and obstructions
- 55S99 None of the above, but in this section
- 55Txx Spectral sequences [See also 18G40, 55R20.]**
- 55T05 General
- 55T10 Serre spectral sequences
- 55T15 Adams spectral sequences
- 55T20 Eilenberg-Moore spectral sequences [See also 57T35.]
- 55T25 Generalized cohomology
- 55T99 None of the above, but in this section
- 55Uxx Applied homological algebra and category theory [See also 18Gxx.]**
- 55U05 Abstract complexes
- 55U10 Semisimplicial complexes
- 55U15 Chain complexes
- 55U20 Universal coefficient theorems, Bockstein operator
- 55U25 Homology of a product, Künneth formula
- 55U30 Duality
- 55U35 Abstract homotopy theory
- 55U40 Topological categories
- 55U99 None of the above, but in this section
- 57-XX MANIFOLDS AND CELL COMPLEXES {For complex manifolds, see 32C10.}**
- 57-00 Handbooks, dictionaries, and other reference works
- 57-01 Elementary exposition; textbooks
- 57-02 Advanced exposition (research surveys, monographs, etc.)
- 57-03 Historical (must also be assigned at least one classification number from Section 01)
- 57-04 Explicit machine computation and programs (not the theory of computation or programming)
- 57-06 Proceedings, conferences, etc.
- 57Mxx Low-dimensional topology (old 55Axx)**
- 57M05 Fundamental group, presentations, free differential calculus
- 57M10 Covering spaces
- 57M12 Special coverings, e.g. branched
- 57M15 Relations with graph theory [See also 05Cxx.]
- 57M20 Two-dimensional complexes
- 57M25 Knots and links in  $S^3$  {For higher dimensions, see 57Q45.}
- 57M30 Wild knots and surfaces, etc., wild imbeddings
- 57M35 Dehn's lemma, sphere theorem, loop theorem, asphericity
- 57M40 Characterizations of  $E^3$  and  $S^3$  (Poincaré conjecture) [See also 57N12.]
- 57M99 None of the above, but in this section
- 57Nxx Topological manifolds**
- 57N05 Topology of  $E^2$ , 2-manifolds
- 57N10 Topology of general 3-manifolds [See also 57Mxx.]
- 57N12 Topology of  $E^3$  and  $S^3$  [See also 57M40.]
- 57N13 Topology of  $E^4$ , 4-manifolds [See also 14Jxx, 32Jxx.]

- 57N15 Topology of  $E^n$ ,  $n$ -manifolds ( $4 < n < \infty$ )
- 57N17 Topology of topological vector spaces
- 57N20 Topology of infinite-dimensional manifolds [See also 58Bxx.]
- 57N25 Shapes [See also 54C56, 54F43, 55P55, 55Q07.]
- 57N30 Engulfing
- 57N35 Imbeddings and immersions
- 57N37 Isotopy and pseudo-isotopy
- 57N40 Neighborhoods of submanifolds
- 57N45 Flatness and tameness
- 57N50  $S^{n-1} \subset E^n$ , Schoenflies problem
- 57N55 Microbundles and block bundles [See also 55R60, 57Q50.]
- 57N60 Cellularity
- 57N65 Algebraic topology of manifolds
- 57N70 Cobordism and concordance
- 57N75 General position and transversality
- 57N80 Stratifications
- 57N99 None of the above, but in this section
- 57Pxx Generalized manifolds [See also 18F15.]**
- 57P05 Local properties
- 57P10 Poincaré duality spaces
- 57P99 None of the above, but in this section
- 57Qxx PL-topology**
- 57Q05 The general topology of complexes
- 57Q10 Simple homotopy type, Whitehead torsion, Reidemeister-Franz torsion, etc. [See also 19B28.]
- 57Q12 Wall finiteness obstruction for CW-complexes
- 57Q15 Triangulating manifolds
- 57Q20 Cobordism
- 57Q25 Comparison of PL-structures: classification, Hauptvermutung
- 57Q30 Engulfing
- 57Q35 Imbeddings and immersions
- 57Q37 Isotopy
- 57Q40 Regular neighborhoods
- 57Q45 Knots and links (in high dimensions) (For the low-dimensional case, see 57M25.)
- 57Q50 Microbundles and block bundles [See also 55R60, 57N55.]
- 57Q55 Approximations
- 57Q60 Cobordism and concordance
- 57Q65 General position and transversality
- 57Q91 Equivariant PL-topology
- 57Q99 None of the above, but in this section
- 57Rxx Differential topology {For foundational questions of differentiable manifolds, see 58Axx; for infinite-dimensional manifolds, see 58Bxx.}**
- 57R05 Triangulating
- 57R10 Smoothing
- 57R12 Smooth approximations
- 57R15 Specialized structures on manifolds (spin manifolds, frame manifolds, etc.)
- 57R19 Algebraic topology of manifolds
- 57R20 Characteristic classes and numbers
- 57R22 Topology of vector bundles and fiber bundles [See also 55Rxx.]
- 57R25 Vector fields, frame fields, etc.
- 57R27 Controllability of vector fields on  $C^\infty$  and real-analytic manifolds [See also 49E15, 49F15.]
- 57R30 Foliations; geometric theory
- 57R32 Classifying spaces for foliations; Gel'fand-Fuks cohomology
- 57R35 Differentiable mappings
- 57R40 Imbeddings
- 57R42 Immersions
- 57R45 Singularities of differentiable mappings
- 57R50 Diffeomorphisms
- 57R52 Isotopy
- 57R55 Differentiable structures
- 57R60 Homotopy spheres, Poincaré conjecture
- 57R65 Surgery and handlebodies
- 57R67 Surgery obstructions, Wall groups [See also 18F25, 19G24.]
- 57R70 Critical points and critical submanifolds
- 57R75 O- and SO-cobordism
- 57R77 Complex cobordism (U- and SU-cobordism) [See also 55N22.]
- 57R80  $h$ - and  $a$ -cobordism
- 57R85 Equivariant cobordism
- 57R90 Other types of cobordism [See 55N22.]
- 57R91 Equivariant algebraic topology of manifolds
- 57R95 Realizing cycles by submanifolds
- 57R99 None of the above, but in this section
- 57Sxx Topological transformation groups [See also 20F34, 22-XX, 54H15, 58D05.]**
- 57S05 Topological properties of groups of homeomorphisms
- 57S10 Compact groups of homeomorphisms
- 57S15 Compact Lie groups of differentiable transformations
- 57S17 Finite transformation groups
- 57S20 Noncompact Lie groups of transformations
- 57S25 Groups acting on specific manifolds
- 57S30 Discontinuous groups of transformations
- 57S99 None of the above, but in this section
- 57Txx Homology and homotopy of topological groups and related structures**
- 57T05 Hopf algebras [See also 16A24.]
- 57T10 Homology and cohomology of Lie groups
- 57T15 Homology and cohomology of homogeneous spaces of Lie groups
- 57T20 Homotopy groups of topological groups and homogeneous spaces
- 57T25 Homology and cohomology of  $H$ -spaces
- 57T30 Bar and cobar constructions [See also 18G55, 55Uxx.]
- 57T35 Applications of Eilenberg-Moore spectral sequences [See also 55R20, 55T20.]
- 57T99 None of the above, but in this section
- 58-XX GLOBAL ANALYSIS, ANALYSIS ON MANIFOLDS [See also 32Cxx, 32Fxx, 46-XX, 47Hxx, 53Cxx; for geometric integration theory, see 49F20, 49F22.]**
- 58-00 Handbooks, dictionaries, and other reference works
- 58-01 Elementary exposition; textbooks
- 58-02 Advanced exposition (research surveys, monographs, etc.)
- 58-03 Historical (must also be assigned at least one classification number from Section 01)
- 58-04 Explicit machine computation and programs (not the theory of computation or programming)
- 58-06 Proceedings, conferences, etc.
- 58Axx General theory of differentiable manifolds**
- 58A05 Differentiable manifolds, foundations
- 58A07 Real-analytic and Nash manifolds [See also 32C05.]
- 58A10 Differential forms
- 58A12 de Rham theory [See also 14Fxx.]
- 58A14 Hodge theory [See also 14C30, 14Fxx, 32Cxx.]
- 58A15 Exterior differential systems (Cartan theory)
- 58A17 Pfaffian systems
- 58A20 Jets
- 58A25 Currents
- 58A30 Vector distributions (subbundles of the tangent bundles)
- 58A35 Stratified sets [See also 32Bxx, 58Cxx.]
- 58A40 Differential spaces
- 58A50 Supermanifolds and graded manifolds
- 58A99 None of the above, but in this section
- 58Bxx Infinite-dimensional manifolds**
- 58B05 Homotopy and topological questions
- 58B10 Differentiability questions
- 58B12 Questions of holomorphy [See also 32-XX, 46G20.]



- 58B15 Fredholm structures [See also 47A53.]
- 58B20 Riemannian, Finsler and other geometric structures [See also 53C20, 53C60.]
- 58B25 Group structures and generalizations on infinite-dimensional manifolds [See also 22E65, 58D05.]
- 58B99 None of the above, but in this section
- 58Cxx Calculus on manifolds; nonlinear operators** [See also 47Hxx.]
- 58C05 Real-valued functions
- 58C06 Set valued and function-space valued mappings
- 58C07 Continuity properties of mappings
- 58C10 Holomorphic maps [See also 32-XX.]
- 58C15 Implicit function theorems; global Newton methods
- 58C20 Differentiation theory (Gâteaux, Fréchet, etc.) [See also 26Exx, 46Gxx.]
- 58C25 Differentiable maps
- 58C27 Singularities of differentiable maps [See also 14B05, 14E15, 32Bxx, 32C40, 32C45.]
- 58C28 Catastrophes [See also 57R70, 58Exx.]
- 58C30 Fixed point theorems [See also 47H10.]
- 58C35 Integration on manifolds; measures on manifolds [See also 28Cxx.]
- 58C40 Spectral theory; eigenvalue problems [See also 58E07.]
- 58C50 Analysis on supermanifolds or graded manifolds
- 58C99 None of the above, but in this section
- 58Dxx Spaces and manifolds of mappings (including nonlinear versions of 46Exx)**
- 58D05 Groups of diffeomorphisms and homeomorphisms as manifolds [See also 22E65, 57Q05.]
- 58D07 Groups and semigroups of nonlinear operators [See also 17B65, 47Dxx, 47H20.]
- 58D10 Spaces of imbeddings and immersions
- 58D15 Manifolds of mappings [See also 54C35.]
- 58D17 Manifolds of metrics (esp. Riemannian)
- 58D20 Measures (Gaussian, cylindrical, etc.) on manifolds of maps [See 28Cxx.]
- 58D25 Equations in function spaces; evolution equations [See also 34Gxx, 35K22, 35R15.]
- 58D30 Applications (in quantum mechanics (Feynman path integrals), relativity, fluid dynamics, etc.)
- 58D99 None of the above, but in this section
- 58Exx Variational problems in infinite-dimensional spaces**
- 58E05 Abstract critical point theory (Morse theory, Ljusternik-Schnirelman (Lyusternik-Shnirel'man) theory, etc.)
- 58E07 Abstract bifurcation theory
- 58E10 Applications to the theory of geodesics (problems in one independent variable)
- 58E11 Critical metrics
- 58E12 Applications to minimal surfaces (problems in two independent variables)
- 58E15 Application to extremal problems in several variables
- 58E17 Pareto optimality, etc., applications to economics
- 58E20 Harmonic maps
- 58E25 Applications to control theory (optimal and nonoptimal)
- 58E30 Variational principles
- 58E35 Variational inequalities (global problems)
- 58E99 None of the above, but in this section
- 58Fxx Ordinary differential equations on manifolds; dynamical systems** {For abstract and topological dynamics, see also 28D10, 34C35, 34C40, 54H20.}
- 58F05 Hamiltonian and Lagrangian systems; symplectic geometry [See also 70Hxx.]
- 58F06 Geometric quantization (applications of representation theory)
- 58F07 Completely integrable systems (including systems with an infinite number of degrees of freedom)
- 58F08 Point-mapping properties, iterations, completeness [See also 26A18.]
- 58F09 Morse-Smale systems
- 58F10 Stability theory
- 58F11 Ergodic theory; invariant measures [See also 28Dxx.]
- 58F12 Structure of attractors (and repellers)
- 58F13 Strange attractors; chaos and other pathologies
- 58F14 Bifurcation theory and singularities
- 58F15 Hyperbolic structures (expanding maps, Anosov systems, etc.)
- 58F17 Geodesic and horocycle flows
- 58F18 Relations with foliations
- 58F19 Eigenvalue and spectral problems
- 58F20 Periodic points and zeta functions
- 58F21 Limit cycles, etc.
- 58F22 Periodic solutions
- 58F25 Flows
- 58F27 Quasiperiodic flows
- 58F30 Perturbations
- 58F32 Functional-differential equations on manifolds
- 58F35 Invariance properties
- 58F37 Correspondences and other transformation methods (e.g. Lie-Bäcklund)
- 58F40 Applications
- 58F99 None of the above, but in this section
- 58Gxx Partial differential equations on manifolds; differential operators** [See also 35-XX.]
- 58G05 Differential complexes [See also 35Nxx.]; elliptic complexes
- 58G07 Relations with hyperfunctions
- 58G10 Index theory and fixed point theorems [See also 19K56, 46L80, 47Hxx.]
- 58G11 Heat and other parabolic equation methods
- 58G12 Exotic index theories [See also 19K56, 46L05, 46L10, 46L80, 46M20.]
- 58G15 Pseudodifferential and Fourier integral operators on manifolds
- 58G16 Hyperbolic equations
- 58G17 Propagation of singularities; initial value problems
- 58G20 Boundary value problems
- 58G25 Spectral problems; spectral geometry; scattering theory
- 58G30 Relations with special manifold structures (Riemannian, Finsler, etc.)
- 58G32 Diffusion processes and stochastic analysis on manifolds
- 58G35 Invariance properties
- 58G37 Correspondences and other transformation methods (e.g. Lie-Bäcklund)
- 58G40 Applications
- 58G99 None of the above, but in this section
- 58Hxx Pseudogroups and general structures on manifolds**
- 58H05 Pseudogroups [See also 22E65.]
- 58H10 Cohomology of classifying spaces for pseudogroup structures (Spencer, Gel'fand-Fuks, etc.)
- 58H15 Deformations of structures [See also 32Gxx, 58G05.]
- 58H99 None of the above, but in this section
- 60-XX PROBABILITY THEORY AND STOCHASTIC PROCESSES** {For additional applications, see 11Kxx, 62-XX, 90-XX, 92-XX, 93-XX, 94-XX. For numerical results, see 65U05.}
- 60-00 Handbooks, dictionaries, and other reference works
- 60-01 Elementary exposition; textbooks
- 60-02 Advanced exposition (research surveys, monographs, etc.)
- 60-03 Historical (must also be assigned at least one classification number from Section 01)
- 60-04 Explicit machine computation and programs (not the theory of computation or programming)
- 60-06 Proceedings, conferences, etc.
- 60Axx Foundations of probability theory**
- 60A05 Axioms; other general questions
- 60A10 Probabilistic measure theory {For ergodic theory, see 28Dxx and 60Fxx.}

- 60A99 None of the above, but in this section
- 60Bxx Probability theory on algebraic and topological structures**
- 60B05 Probability measures on topological spaces
- 60B10 Convergence of probability measures
- 60B11 Probability theory on linear topological spaces [See also 28C20.]
- 60B12 Limit theorems for vector-valued random variables (infinite-dimensional case)
- 60B15 Probability measures on groups, Fourier transforms, factorization
- 60B99 None of the above, but in this section
- 60C05 Combinatorial probability**
- 60D05 Geometric probability, stochastic geometry, random sets** [See also 52A22, 53C65.]
- 60Exx Distribution theory** [See also 62Exx, 62Hxx.]
- 60E05 Distributions: general theory
- 60E07 Infinitely divisible distributions; stable distributions
- 60E10 Characteristic functions; other transforms
- 60E15 Inequalities (Chebyshev, Kolmogorov, etc.)
- 60E99 None of the above, but in this section
- 60Fxx Limit theorems** [See also 28Dxx, 60B12.]
- 60F05 Central limit and other weak theorems
- 60F10 Large deviations
- 60F15 Strong theorems
- 60F17 Functional limit theorems; invariance theorems
- 60F20 Zero-one laws
- 60F25  $L^p$ -limit theorems
- 60F99 None of the above, but in this section
- 60Gxx Stochastic processes**
- 60G05 Foundations of stochastic processes
- 60G07 General theory of processes
- 60G09 Exchangeability
- 60G10 Stationary processes
- 60G12 General second-order processes
- 60G15 Gaussian processes
- 60G17 Sample path properties
- 60G20 Generalized stochastic processes
- 60G25 Prediction theory [See also 62M20.]
- 60G30 Continuity and singularity of induced measures
- 60G35 Applications (signal detection, filtering, etc.) [See also 62M20, 94Axx.]
- 60G40 Stopping times; optimal stopping problems; gambling theory [See also 62L15.]
- 60G42 Martingales with discrete parameter
- 60G44 Martingales with continuous parameter
- 60G46 Martingales and classical analysis
- 60G48 Generalizations of martingales
- 60G50 Sums of independent random variables
- 60G55 Point processes
- 60G57 Random measures
- 60G60 Random fields
- 60G99 None of the above, but in this section
- 60Hxx Stochastic analysis** [See also 58G32.]
- 60H05 Stochastic integrals
- 60H07 Stochastic calculus of variations
- 60H10 Stochastic ordinary differential equations [See also 34F05.]
- 60H15 Stochastic partial differential equations [See also 35R60.]
- 60H20 Stochastic integral equations
- 60H25 Random operators and equations
- 60H99 None of the above, but in this section
- 60Jxx Markov processes**
- 60J05 Markov processes with discrete parameter
- 60J10 Markov chains with discrete parameter
- 60J15 Random walk
- 60J20 Applications of discrete Markov processes (social mobility, learning theory, industrial processes, etc.)
- 60J25 Markov processes with continuous parameter
- 60J27 Markov chains with continuous parameter
- 60J30 Processes with independent increments
- 60J35 Transition functions, generators and resolvents [See also 47D05, 47D07.]
- 60J40 Hunt processes
- 60J45 Probabilistic potential theory [See also 31-XX.]
- 60J50 Boundary theory
- 60J55 Local time and additive functionals
- 60J57 Multiplicative functionals
- 60J60 Diffusion processes [See also 58G32.]
- 60J65 Brownian motion [See also 58G32.]
- 60J70 Applications of diffusion theory (population genetics, absorption problems, etc.)
- 60J75 Jump processes
- 60J80 Branching processes (Galton-Watson, birth-and-death, etc.)
- 60J85 Applications of branching processes [See also 60K30, 92A10, 92A15.]
- 60J99 None of the above, but in this section
- 60Kxx Special processes**
- 60K05 Renewal theory
- 60K10 Applications (reliability, demand theory, etc.)
- 60K15 Markov renewal processes, semi-Markov processes
- 60K20 Applications of Markov renewal processes (reliability, queueing networks, etc.) [See also 90B22, 90B25.]
- 60K25 Queueing theory [See also 68M20, 90B22.]
- 60K30 Applications (congestion, allocation, storage, traffic, etc.) [See also 60J80.]
- 60K35 Interacting random processes; statistical mechanics type models; percolation theory
- 60K99 None of the above, but in this section
- 62-XX STATISTICS {For numerical methods, see 65U05.}**
- 62-00 Handbooks, dictionaries, and other reference works
- 62-01 Elementary exposition; textbooks
- 62-02 Advanced exposition (research surveys, monographs, etc.)
- 62-03 Historical (must also be assigned at least one classification number from Section 01)
- 62-04 Explicit machine computation and programs (not the theory of computation or programming)
- 62-06 Proceedings, conferences, etc.
- 62-07 Data analysis
- 62Axx Foundations**
- 62A05 Invariance and group considerations
- 62A10 The likelihood approach
- 62A15 The Bayesian approach
- 62A20 The classical approach
- 62A25 The structural approach
- 62A30 The fiducial approach
- 62A99 None of the above, but in this section
- 62Bxx Sufficiency**
- 62B05 Sufficient statistics and fields
- 62B10 Statistical information theory
- 62B15 Comparison of experiments
- 62B20 Measure-theoretic results, etc.
- 62B99 None of the above, but in this section
- 62Cxx Decision theory** [See also 90A05; for game theory, see 90Dxx.]
- 62C05 General considerations
- 62C07 Complete class results
- 62C10 Bayesian problems; characterization of Bayes procedures
- 62C12 Empirical decision procedures
- 62C15 Admissibility
- 62C20 Minimax procedures
- 62C25 Compound decision problems
- 62C99 None of the above, but in this section
- 62D05 Sampling theory, sample surveys**

**62Exx Distribution theory [See also 60Exx.]**

- 62E10 Characterization and structure theory
- 62E15 Exact distribution theory
- 62E20 Asymptotic distribution theory
- 62E25 Monte Carlo studies
- 62E30 Formal computational methods (polykays, etc.)
- 62E99 None of the above, but in this section

**62Fxx Parametric inference**

- 62F03 Hypothesis testing
- 62F04 Small sample properties of tests
- 62F05 Asymptotic properties of tests
- 62F07 Ranking and selection
- 62F10 Point estimation
- 62F11 Small sample properties of estimators
- 62F12 Asymptotic properties of estimators
- 62F15 Bayesian inference
- 62F25 Tolerance and confidence regions
- 62F35 Robustness and adaptive procedures
- 62F99 None of the above, but in this section

**62Gxx Nonparametric inference**

- 62G05 Estimation
- 62G10 Hypothesis testing
- 62G15 Tolerance and confidence regions
- 62G20 Asymptotic efficiency
- 62G25 Quick and easy methods
- 62G30 Order statistics; empirical distribution functions
- 62G99 None of the above, but in this section

**62Hxx Multivariate analysis [See also 60Exx.]**

- 62H05 Characterization and structure theory
- 62H10 Distribution of statistics
- 62H12 Estimation
- 62H15 Hypothesis testing
- 62H17 Contingency
- 62H20 Measures of association (correlation, canonical correlation, etc.)
- 62H25 Factor analysis and principal components
- 62H30 Classification and discrimination; cluster analysis [See also 68T10.]
- 62H99 None of the above, but in this section

**62Jxx Regression and correlation**

- 62J02 General nonlinear regression
- 62J05 Linear regression
- 62J07 Ridge regression; James-Stein estimators
- 62J10 Analysis of variance and covariance
- 62J15 Paired and multiple comparisons
- 62J99 None of the above, but in this section

**62Kxx Experimental design [See also 05Bxx.]**

- 62K05 Optimal designs
- 62K10 Block designs
- 62K15 Factorial designs
- 62K99 None of the above, but in this section

**62Lxx Sequential methods**

- 62L05 Sequential design
- 62L10 Sequential analysis
- 62L12 Sequential estimation
- 62L15 Optimal stopping [See also 60G40.]
- 62L20 Stochastic approximation
- 62L99 None of the above, but in this section

**62Mxx Inference from stochastic processes**

- 62M02 Markov processes: hypothesis testing
- 62M05 Markov processes: estimation
- 62M07 Non-Markovian processes: hypothesis testing
- 62M09 Non-Markovian processes: estimation
- 62M10 Time series, auto-correlation, regression, etc. [See also 90A20.]
- 62M15 Spectral analysis of time series
- 62M20 Prediction [See also 60G25.]; filtering [See also 60G35, 93E10, 93E11.]
- 62M30 Spatial models (use only for secondary classification)
- 62M99 None of the above, but in this section

**62Nxx Engineering statistics**

- 62N05 Reliability and life testing [See also 90B25.]
- 62N10 Quality control [See also 90Bxx.]
- 62N99 None of the above, but in this section

**62Pxx Applications [See also 82-XX, 90-XX, 92-XX.]**

- 62P05 Actuarial mathematics
- 62P10 Biometrics
- 62P15 Psychometrics
- 62P20 Econometrics [See also 90Axx.]
- 62P25 Sociometrics
- 62P99 None of the above, but in this section

**62Q05 Statistical tables****65-XX NUMERICAL ANALYSIS**

- 65-00 Handbooks, dictionaries, and other reference works
- 65-01 Elementary exposition; textbooks
- 65-02 Advanced exposition (research surveys, monographs, etc.)
- 65-03 Historical (must also be assigned at least one classification number from Section 01)
- 65-04 Explicit machine computation and programs (not the theory of computation or programming)
- 65-06 Proceedings, conferences, etc.

**65A05 Tables****65Bxx Acceleration of convergence**

- 65B05 Extrapolation to the limit, deferred corrections
- 65B10 Summation of series
- 65B15 Euler-Maclaurin formula
- 65B20 Poisson formula, etc.
- 65B99 None of the above, but in this section

**65Cxx Numerical simulation {For theoretical aspects, see 68U20.}**

- 65C05 Monte Carlo methods
- 65C10 Random number generation
- 65C20 Models, numerical methods
- 65C99 None of the above, but in this section

**65Dxx Numerical approximation {Primarily algorithms; for theory, see 41-XX.}**

- 65D05 Interpolation
- 65D07 Splines
- 65D10 Smoothing, curve fitting
- 65D15 Algorithms for functional approximation
- 65D20 Computation of special functions, construction of tables
- 65D25 Numerical differentiation
- 65D30 Numerical integration
- 65D32 Quadrature and cubature formulas
- 65D99 None of the above, but in this section

**65E05 Numerical methods in complex analysis (potential theory, etc.) {For numerical methods in conformal mapping, see 30C30.}****65Fxx Numerical linear algebra**

- 65F05 Direct methods for linear systems and matrix inversion
- 65F10 Iterative methods for linear systems [See also 65N20.]
- 65F15 Eigenvalues, eigenvectors
- 65F20 Overdetermined systems, pseudoinverses
- 65F25 Orthogonalization
- 65F30 Other matrix algorithms
- 65F35 Matrix norms, conditioning, scaling [See also 15A12, 15A60.]
- 65F40 Determinants
- 65F50 Sparse matrices
- 65F99 None of the above, but in this section

**65Gxx Error analysis**

- 65G05 Roundoff error
- 65G10 Interval and finite arithmetic
- 65G99 None of the above, but in this section

**65Hxx Nonlinear algebraic or transcendental equations**

- 65H05 Single equations
- 65H10 Systems of equations
- 65H15 Eigenvalues, eigenvectors



- 65H99 None of the above, but in this section
- 65Jxx Numerical analysis in abstract spaces**
- 65J05 General
- 65J10 Equations with linear operators (do not use 65Fxx)
- 65J15 Equations with nonlinear operators (do not use 65Hxx)
- 65J99 None of the above, but in this section
- 65Kxx Mathematical programming, optimization and variational techniques [See also 49Dxx, 90Cxx, 93-XX.]**
- 65K05 Mathematical programming
- 65K10 Optimization and variational techniques
- 65K99 None of the above, but in this section
- 65Lxx Ordinary differential equations**
- 65L05 Initial value problems
- 65L07 Numerical investigation of stability of solutions
- 65L10 Boundary value problems
- 65L15 Eigenvalue problems
- 65L20 Stability of numerical methods
- 65L50 Mesh generation and refinement
- 65L60 Finite elements, Rayleigh-Ritz and Galerkin methods, finite methods
- 65L99 None of the above, but in this section
- 65Mxx Partial differential equations, initial value problems**
- 65M05 Derivation of finite difference approximations
- 65M10 Stability and convergence of difference methods
- 65M15 Error bounds
- 65M20 Method of lines
- 65M25 Method of characteristics
- 65M30 Improperly posed problems
- 65M50 Mesh generation and refinement
- 65M60 Finite elements, Rayleigh-Ritz and Galerkin methods, finite methods
- 65M99 None of the above, but in this section
- 65Nxx Partial differential equations, boundary value problems**
- 65N05 Derivation of finite difference approximations
- 65N10 Stability and convergence of difference methods
- 65N15 Error bounds
- 65N20 Solution of difference equations [See also 65F10.]
- 65N25 Eigenvalue problems
- 65N30 Finite elements, Rayleigh-Ritz and Galerkin methods, finite methods
- 65N35 Collocation and related methods
- 65N40 Methods of lines
- 65N45 Method of contraction of the boundary
- 65N50 Mesh generation and refinement
- 65N99 None of the above, but in this section
- 65P05 Partial differential equations, miscellaneous problems**
- 65Q05 Difference and functional equations, recurrence relations**
- 65Rxx Integral equations, integral transforms [See also 45Lxx.]**
- 65R10 Integral transforms
- 65R20 Integral equations
- 65R99 None of the above, but in this section
- 65S05 Graphical methods**
- 65T05 Harmonic analysis and synthesis**
- 65U05 Numerical methods in probability and statistics**
- 65V05 Automated algorithms [See also 68Q20.]**
- 65W05 Parallel computation**
- 68-XX COMPUTER SCIENCE {For papers involving machine computations and programs in a specific mathematical area, see section -04 in that area,}**
- 68-00 Handbooks, dictionaries, and other reference works
- 68-01 Elementary exposition; textbooks
- 68-02 Advanced exposition (research surveys, monographs, etc.)
- 68-03 Historical (must also be assigned at least one classification number from Section 01)
- 68-04 Explicit machine computation and programs (not the theory of computation or programming)
- 68-06 Proceedings, conferences, etc.
- 68Mxx Computers and computer systems**
- 68M05 General
- 68M10 Computer networks
- 68M15 Reliability and testing
- 68M20 Performance evaluation; queueing theory models [See also 60K25.]
- 68M99 None of the above, but in this section
- 68Nxx Software**
- 68N05 General theory of programming
- 68N15 Programming languages
- 68N20 Compilers and generators
- 68N25 Monitors and operating systems
- 68N99 None of the above, but in this section
- 68Pxx Theory of data**
- 68P05 Data structures
- 68P10 Searching and sorting
- 68P15 Database theory
- 68P20 Information retrieval
- 68P25 Data encryption
- 68P99 None of the above, but in this section
- 68Qxx Theory of computing [See also 03D05, 18B20.]**
- 68Q05 Models of computation (abstract processors, Turing machines, etc.)
- 68Q10 Modes of computation (concurrent, parallel, etc.)
- 68Q15 Complexity classes
- 68Q20 Nonnumerical algorithms {For numerical algorithms, see 65-XX; for combinatorics and graph theory, see 68Rxx.}
- 68Q25 Analysis of algorithms
- 68Q30 Algorithmic information theory (Kolmogorov complexity, etc.)
- 68Q35 VLSI algorithms
- 68Q40 Symbolic computation, algebraic computation
- 68Q45 Formal languages
- 68Q50 Grammars, rewriting systems
- 68Q55 Semantics
- 68Q60 Program verification
- 68Q65 Abstract data types
- 68Q70 Algebraic theory of automata [See also 20M35.]
- 68Q75 Stochastic and nondeterministic automata
- 68Q80 Tessellation automata, iterative arrays, cellular structure
- 68Q90 Transition nets
- 68Q99 None of the above, but in this section
- 68Rxx Discrete mathematics in relation to computer science**
- 68R05 Combinatorics
- 68R10 Graph theory [See also 05Cxx.]
- 68R99 None of the above, but in this section
- 68Sxx Mathematical linguistics [See also 03B65.]**
- 68S05 General
- 68S10 Semantics
- 68S15 Translation of natural languages
- 68Txx Artificial intelligence**
- 68T01 General
- 68T05 Learning and adaptive systems
- 68T10 Pattern recognition, speech recognition {For cluster analysis, see 62H30.}
- 68T15 Theorem proving [See also 03B35.]
- 68T20 Problem solving
- 68T25 Special programming languages
- 68T30 Knowledge representation
- 68T99 None of the above, but in this section

**68Uxx Computing methodologies**

- 68U05 Computer graphics; computational geometry
- 68U10 Image processing
- 68U15 Text processing; mathematical typography
- 68U20 Simulation [See also 65Cxx.]
- 68U30 Other applications
- 68U99 None of the above, but in this section

**70-XX MECHANICS OF PARTICLES AND SYSTEMS**

{For relativistic mechanics, see 83A05 and 83C10; for statistical mechanics, see 82-XX.}

- 70-00 Handbooks, dictionaries, and other reference works
- 70-01 Elementary exposition; textbooks
- 70-02 Advanced exposition (research surveys, monographs, etc.)
- 70-03 Historical (must also be assigned at least one classification number from Section 01)
- 70-04 Explicit machine computation and programs (not the theory of computation or programming)
- 70-05 Experimental papers
- 70-06 Proceedings, conferences, etc.
- 70-08 Computational methods

**70A05 Axiomatics, foundations****70Bxx Kinematics [See also 53A17.]**

- 70B05 Kinematics of a particle
- 70B10 Kinematics of a rigid body
- 70B15 Mechanisms and linkages, robots
- 70B99 None of the above, but in this section

**70Cxx Statics**

- 70C05 Forces, fields
- 70C10 Potential energy
- 70C99 None of the above, but in this section

**70Dxx Dynamics of a particle [See also 70Hxx.]**

- 70D05 Newtonian dynamics
- 70D10 Lagrangian dynamics
- 70D99 None of the above, but in this section

**70Exx Dynamics of rigid bodies**

- 70E05 Motion of the gyroscope
- 70E10 Motion of projectiles and rockets
- 70E15 Motion of a general rigid body
- 70E20 Perturbation methods for Euler's equations
- 70E25 Poincaré method
- 70E99 None of the above, but in this section

**70Fxx Dynamics of a system of particles, including celestial mechanics**

- 70F05 Two-body problem
- 70F07 Three-body problem
- 70F10 n-body problem
- 70F15 Celestial mechanics
- 70F20 Holonomic systems
- 70F25 Nonholonomic systems
- 70F30 Impulsive motion
- 70F35 Collisions
- 70F99 None of the above, but in this section

**70Gxx General representations of dynamical systems [See also 58F05.]**

- 70G05 Riemannian geometry, tensorial methods [See also 53A45, 53A50, 53B20.]
- 70G10 Generalized coordinates
- 70G15 Space of events
- 70G20 Impulse-energy space
- 70G25 Configuration space
- 70G30 State space
- 70G35 Phase space
- 70G50 Classical field theories (general)
- 70G99 None of the above, but in this section

**70Hxx Hamiltonian and Lagrangian mechanics [See also 58F05.]**

- 70H05 Hamilton's equations
- 70H10 Liouville's theorem

- 70H15 Canonical transformations
- 70H20 Hamilton-Jacobi equations
- 70H25 Hamilton's principle
- 70H30 Other variational principles
- 70H35 Lagrange's equation of motion
- 70H40 Relativistic dynamics
- 70H99 None of the above, but in this section

**70Jxx Linear vibration theory**

- 70J05 Finite degree of freedom systems
- 70J10 Normal modes of vibrations
- 70J15 Conservative systems
- 70J20 Nonconservative systems
- 70J25 Stability
- 70J30 Free motions, parametric resonance
- 70J99 None of the above, but in this section

**70Kxx Nonlinear motions [See also 34Cxx, 58Fxx.]**

- 70K05 Phase plane analysis
- 70K10 Limit cycles
- 70K15 Lyapunov theorems
- 70K20 Stability
- 70K25 Free motions (use only for secondary classification)
- 70K30 Nonlinear resonances
- 70K40 Forced motions
- 70K50 Transition to stochasticity [See also 58F13.]
- 70K99 None of the above, but in this section

**70L05 Random vibrations [See also 93Exx.]****70Mxx Orbital mechanics**

- 70M05 Satellite problems
- 70M10 Orbital stability
- 70M99 None of the above, but in this section

**70N05 Exterior ballistics****70P05 Variable mass, rockets****70Q05 Control of mechanical systems [See also 49Exx, 90D25, 90D26, 93Cxx, 93Dxx.]****73-XX MECHANICS OF SOLIDS**

- 73-00 Handbooks, dictionaries, and other reference works
- 73-01 Elementary exposition; textbooks
- 73-02 Advanced exposition (research surveys, monographs, etc.)
- 73-03 Historical (must also be assigned at least one classification number from Section 01)
- 73-04 Explicit machine computation and programs (not the theory of computation or programming)
- 73-05 Experimental papers
- 73-06 Proceedings, conferences, etc.
- 73-08 Computational methods

**73A05 Axiomatics, foundations****73Bxx Continuum mechanics {For fluids, see 76Axx.}**

- 73B05 Constitutive equations
- 73B10 Isotropic functionals
- 73B15 Rotational groups [See also 22Exx.]
- 73B20 Simple materials
- 73B25 Multipolar stress theory
- 73B30 Thermodynamics of solids [See also 73U05; for gases and fluids, see 80-XX.]
- 73B35 Random materials
- 73B99 None of the above, but in this section

**73Cxx Elasticity {For the biharmonic equation, see 31A30, 31B30; for acoustics, see 76Q05.}**

- 73C02 Classical linear elasticity
- 73C03 Complex variable techniques
- 73C05 Stress functions
- 73C10 Saint-Venant's principle
- 73C15 Uniqueness theorems
- 73C20 Strain energy methods
- 73C25 Thermal stress problems
- 73C30 Anisotropic bodies
- 73C35 Mixed boundary value problems [See also 45F05.]
- 73C40 Nonhomogeneous bodies and inclusions

- 73C45 Stress concentrations  
 73C50 Nonlinear elasticity  
 73C60 Variational methods [See also 35J85, 35K85, 35L85, 49A29.]  
 73C99 None of the above, but in this section  
**73Dxx Wave propagation in and vibrations of solids**  
 73D05 Impact and explosion problems [See also 76L05.]  
 73D10 Integral transforms  
 73D15 Dilatational and shear waves  
 73D20 Surface waves  
 73D25 Wave diffraction and dispersion  
 73D30 Linear vibrations [See also 70Jxx.]  
 73D35 Nonlinear vibrations [See also 70Kxx.]  
 73D40 Singular surfaces  
 73D50 Inverse problems [See also 35Lxx, 35R30.]  
 73D70 Random waves  
 73D99 None of the above, but in this section  
**73Exx Plasticity**  
 73E05 Yield criteria and flow rules  
 73E10 Method of successive approximations  
 73E15 Slip-line theory  
 73E20 Limit analysis  
 73E25 Creep  
 73E50 Time-dependent problems  
 73E99 None of the above, but in this section  
**73Fxx Viscoelasticity**  
 73F05 Creep and relaxation functions  
 73F10 Correspondence principle  
 73F15 Time-dependent boundary value problems  
 73F20 Aging of materials  
 73F25 Environmental-dependent materials  
 73F30 Viscoplasticity  
 73F99 None of the above, but in this section  
**73Gxx Finite deformations**  
 73G05 Finite elasticity  
 73G10 Strain energy functions  
 73G15 Finite viscoelasticity  
 73G20 Metal forming problems  
 73G99 None of the above, but in this section  
**73Hxx Stability (linear and nonlinear)**  
 73H05 Buckling  
 73H10 Dynamic stability  
 73H99 None of the above, but in this section  
**73Jxx Aero- and hydroelasticity**  
 73J05 Interaction of aerodynamics and elasticity  
 73J06 Interaction of hydrodynamics and elasticity  
 73J10 Vibrations, flutter  
 73J15 Divergence  
 73J99 None of the above, but in this section  
**73Kxx Structural mechanics**  
 73K03 Strings  
 73K05 Beams, columns, rods  
 73K10 Plates, discs  
 73K12 Vibrations of beams, plates, etc.  
 73K15 Membranes, shells  
 73K20 Composite structures and materials  
 73K25 Finite element methods  
 73K30 Other numerical methods  
 73K35 Random excitation  
 73K40 Optimization  
 73K99 None of the above, but in this section  
**73Lxx Theory of shells**  
 73L05 Non-Euclidean geometry, tensorial methods [See also 53A45.]  
 73L10 Anisotropic shells  
 73L15 Shell dynamics  
 73L20 Vibrations of shells  
 73L99 None of the above, but in this section  
**73Mxx Fractural mechanics**  
 73M05 Brittle fracture, cracks  
 73M10 Fatigue  
 73M15 Ductile fracture  
 73M20 Material instability  
 73M99 None of the above, but in this section  
**73Nxx Geophysical solid mechanics [See also 86-XX.]**  
 73N05 Global dynamics  
 73N10 Earthquake problems  
 73N99 None of the above, but in this section  
**73Pxx Biomechanics of solids**  
 73P05 Mathematical models of biological materials  
 73P10 Mechanics response  
 73P99 None of the above, but in this section  
**73Q05 Soil mechanics**  
**73R05 Electromagnetic elasticity**  
**73Sxx Micromechanics of solids**  
 73S05 Dislocation theory  
 73S99 Other micromechanics  
**73T05 Contact problems**  
**73U05 Thermomechanics of solids [See also 73B30.]**  
**76-XX FLUID MECHANICS (For general continuum mechanics, see 73Bxx, or other parts of 73-XX.)**  
 76-00 Handbooks, dictionaries, and other reference works  
 76-01 Elementary exposition; textbooks  
 76-02 Advanced exposition (research surveys, monographs, etc.)  
 76-03 Historical (must also be assigned at least one classification number from Section 01)  
 76-04 Explicit machine computation and programs (not the theory of computation or programming)  
 76-05 Experimental papers  
 76-06 Proceedings, conferences, etc.  
 76-08 Computational methods  
**76Axx Foundations, constitutive equations, rheology [See also 35L65.]**  
 76A02 Foundations  
 76A05 Non-Newtonian fluids  
 76A10 Viscoelastic fluids  
 76A99 None of the above, but in this section  
**76Bxx Incompressible inviscid fluids, potential theory**  
 76B05 Airfoil theory  
 76B10 Jets and cavities, cavitation, free-streamline theory, water-entry problems, hydrofoil theory, sloshing  
 76B15 Water waves, gravity waves; dispersion and diffraction, nonlinear interaction  
 76B20 Ship waves  
 76B25 Solitary and cnoidal waves  
 76B35 Random waves  
 76B40 Added mass computations  
 76B45 Capillarity  
 76B99 None of the above, but in this section  
**76Cxx Incompressible inviscid fluids, vorticity flows**  
 76C05 Vorticity flows  
 76C10 Internal waves  
 76C15 Atmospheric waves  
 76C20 Rossby waves  
 76C99 None of the above, but in this section  
**76Dxx Incompressible viscous fluids**  
 76D05 Navier-Stokes equations [See also 35Q10.]  
 76D07 Stokes flows  
 76D08 Lubrication theory  
 76D10 Boundary-layer theory  
 76D15 Boundary-layer separation and reattachment  
 76D20 Higher-order effects in boundary layers  
 76D25 Wakes and jets  
 76D30 Singular perturbation problems  
 76D33 Waves  
 76D35 Random waves



- 76D99 None of the above, but in this section
- 76Exx Hydrodynamic stability**
- 76E05 Stability of parallel flows
- 76E10 Inertial instability
- 76E15 Convective instability
- 76E20 Instability of geophysical and astrophysical flows
- 76E25 Magnetohydrodynamic and electrohydrodynamic instabilities
- 76E30 Nonlinear effects
- 76E99 None of the above, but in this section
- 76Fxx Turbulence [See also 58F13, 58F27, 60Gxx, 60Jxx.]**
- 76F05 Homogeneous isotropic turbulence
- 76F10 Shear flows
- 76F99 None of the above, but in this section
- 76Gxx General aerodynamics and subsonic flows**
- 76G05 Hodograph methods
- 76G10 Kármán-Tsien approximation
- 76G15 Iterative methods
- 76G20 Free-streamline theory
- 76G99 None of the above, but in this section
- 76H05 Transonic flows, limit lines**
- 76Jxx Supersonic flows**
- 76J05 Hodograph methods
- 76J10 Method of characteristics
- 76J99 None of the above, but in this section
- 76K05 Hypersonic flows**
- 76L05 Shock waves and blast waves [See also 73D05.]**
- 76M05 Nonhomentropic flows of compressible fluids**
- 76Nxx Compressible fluids and gas dynamics, general**
- 76N05 Boundary layer theory
- 76N10 Compressible fluids, general
- 76N15 Gas dynamics, general
- 76N99 None of the above, but in this section
- 76P05 Rarefied gas flows, Boltzmann equation [See also 82A05.]**
- 76Q05 Hydrodynamic sound, acoustics**
- 76Rxx Diffusion and convection [See also 60J60.]**
- 76R05 Forced convection
- 76R10 Free convection
- 76R50 Diffusion
- 76R99 None of the above, but in this section
- 76S05 Flows in porous media; filtration; seepage**
- 76T05 Two-phase and multiphase flows**
- 76U05 Rotating fluids**
- 76V05 Stratified and reacting fluids**
- 76W05 Magnetohydrodynamics and electrohydrodynamics**
- 76X05 Ionised gas flow in electromagnetic fields; plasmic flow**
- 76Y05 Quantum hydrodynamics and relativistic hydrodynamics [See also 83C55, 85A30.]**
- 76Zxx Biological fluid mechanics**
- 76Z05 Physiological flows
- 76Z10 Biopropulsion in water and in air
- 76Z99 None of the above, but in this section

**78-XX OPTICS, ELECTROMAGNETIC THEORY {For quantum optics, see 81K05.}**

- 78-00 Handbooks, dictionaries, and other reference works
- 78-01 Elementary exposition; textbooks
- 78-02 Advanced exposition (research surveys, monographs, etc.)
- 78-03 Historical (must also be assigned at least one classification number from Section 01)
- 78-04 Explicit machine computation and programs (not the theory of computation or programming)
- 78-05 Experimental papers
- 78-06 Proceedings, conferences, etc.
- 78-08 Computational methods
- 78A02 Foundations

- 78A05 Geometric optics
- 78A10 Physical optics
- 78A15 Electron optics
- 78A20 Space charge waves
- 78A25 Electromagnetic theory, general
- 78A30 Electro- and magnetostatics
- 78A35 Motion of charged particles
- 78A40 Waves and radiation
- 78A45 Diffraction, scattering [See also 34E20 for WKB methods.]
- 78A50 Antennas, wave-guides
- 78A55 Technical applications
- 78A60 Lasers, masers, optical bistability [See also 81K05.]
- 78A70 Biological applications [See also 92A09, 92A27.]
- 78A97 Mathematically heuristic optics and electromagnetic theory (must also be assigned at least one other classification number in this section)
- 78A99 Miscellaneous topics

**80-XX CLASSICAL THERMODYNAMICS, HEAT TRANSFER {For thermodynamics of solids, see 73B30.}**

- 80-00 Handbooks, dictionaries, and other reference works
- 80-01 Elementary exposition; textbooks
- 80-02 Advanced exposition (research surveys, monographs, etc.)
- 80-03 Historical (must also be assigned at least one classification number from Section 01)
- 80-04 Explicit machine computation and programs (not the theory of computation or programming)
- 80-05 Experimental papers
- 80-06 Proceedings, conferences, etc.
- 80-08 Computational methods
- 80A05 Foundations
- 80A10 Classical thermodynamics
- 80A15 Thermodynamics of mixtures
- 80A20 Heat and mass transfer, heat flow
- 80A25 Combustion, interior ballistics
- 80A30 Chemical kinetics [See also 92A09, 92A40.]
- 80A32 Chemically reacting flows [See also 92A09, 92A40.]
- 80A50 Chemistry (general)
- 80A97 Mathematically heuristic classical thermodynamics (must also be assigned at least one other classification number in this section)
- 80A99 Miscellaneous topics

**81-XX QUANTUM MECHANICS**

- 81-00 Handbooks, dictionaries, and other reference works
- 81-01 Elementary exposition; textbooks
- 81-02 Advanced exposition (research surveys, monographs, etc.)
- 81-03 Historical (must also be assigned at least one classification number from Section 01)
- 81-04 Explicit machine computation and programs (not the theory of computation or programming)
- 81-05 Experimental papers
- 81-06 Proceedings, conferences, etc.
- 81-08 Computational methods

**81Bxx Axiomatics, foundations, philosophy**

- 81B05 General
- 81B10 Logical foundations of quantum mechanics
- 81B99 None of the above, but in this section

**81Cxx General mathematical topics and methods in quantum mechanics**

- 81C05 Closed and approximate solutions to the Schrödinger, Dirac, Klein-Gordon and other quantum mechanical equations
- 81C10 Selfadjoint operator theory in quantum mechanics; essential selfadjointness of the Hamiltonian
- 81C12 Perturbation theory for operators
- 81C15 Perturbation theory for differential equations; WKB techniques

- 81C20 Probabilistic methods in quantum mechanics, including stochastic electrodynamics
- 81C25 Canonical transformations, symplectic phase-space considerations
- 81C30 Feynman integrals and graphs; applications of algebraic topology and algebraic geometry to these problems [See also 14D05, 32B30.]
- 81C35 Path integrals [See also 28C20, 58D30.]
- 81C40 General group representations motivated by physics but not covered by Section 81Gxx below; representations of concrete classical groups such as  $SL(n, C)$ ,  $U(p, q)$ , etc. [See also 20C35, 22E70.]
- 81C99 None of the above, but in this section
- 81Dxx General quantum mechanics**
- 81D05 Commutation relations
- 81D07 Quantization
- 81D10 Bethe-Salpeter equation
- 81D15 Current algebra
- 81D20 Broken symmetries
- 81D25 Covariant wave equations
- 81D30 Coherent states
- 81D99 None of the above, but in this section
- 81Exx Quantum field theory**
- 81E05 Axiomatic quantum field theory; operator algebras
- 81E08 Constructive quantum field theory
- 81E13 Yang-Mills and other gauge theories (classical and quantum aspects)
- 81E15 Renormalization theory (including perturbative, nonperturbative and renormalization group methods)
- 81E20 Field theory on curved space backgrounds [See also 83C47.]
- 81E25 Lattice theories
- 81E99 None of the above, but in this section
- 81Fxx Scattering theories**
- 81F05 2-body potential scattering theory [See also 34E20 for WKB methods.]
- 81F10  $n$ -body potential scattering theory
- 81F15  $S$ -matrix theory, etc.
- 81F20 Particle scattering theories
- 81F30 Dispersion theory, dispersion relations
- 81F99 None of the above, but in this section
- 81Gxx Particle physics (this covers all kinds of particles and interactions)**
- 81G05 Strong interaction
- 81G10 Electromagnetic interaction
- 81G15 Weak interaction
- 81G20 Application of group theory to elementary particles, including grand unification and supersymmetry (For supergravity, see 83E50.)
- 81G25 Other elementary particle theory
- 81G30 Applications of group theory to nuclear physics
- 81G35 Other nuclear physics
- 81G40 Applications of group theory to atomic physics
- 81G45 Other atomic physics
- 81G50 Applications of group theory to molecular physics
- 81G55 Other molecular physics
- 81G99 None of the above, but in this section
- 81Hxx Quantum mechanics of many-body systems**
- 81H10 Nuclear structure [See also 81G35.]
- 81H20 Solid state band theory
- 81H99 None of the above, but in this section
- 81J05 Superconductivity and superfluidity**
- 81K05 Quantum optics**
- 81L05 Quantum electrodynamics**
- 81M05 Relativistic theory**
- 81N05 Mathematically heuristic quantum mechanics (must also be assigned at least one other classification number in this section)**

## 82-XX STATISTICAL PHYSICS, STRUCTURE OF MATTER

- 82-00 Handbooks, dictionaries, and other reference works
- 82-01 Elementary exposition; textbooks
- 82-02 Advanced exposition (research surveys, monographs, etc.)
- 82-03 Historical (must also be assigned at least one classification number from Section 01)
- 82-04 Explicit machine computation and programs (not the theory of computation or programming)
- 82-05 Experimental papers
- 82-06 Proceedings, conferences, etc.
- 82-08 Computational methods
- 82A05 Mathematical general statistical mechanics
- 82A15 Mathematical quantum statistical mechanics
- 82A25 Phase transitions; critical phenomena; renormalization group
- 82A30 Statistical thermodynamics [See also 80-XX.]
- 82A31 Stochastic methods
- 82A35 Irreversible thermodynamics, including Onsager-Machlup theory
- 82A40 Kinetic theory of gases
- 82A42 Random media
- 82A43 Percolation
- 82A45 Plasma
- 82A50 Liquids
- 82A51 Polymers
- 82A55 Solids
- 82A57 Disordered materials, including liquid crystals and spin glasses
- 82A60 Crystals {For crystallographic group theory, see 20H15.}
- 82A65 Metals
- 82A67 Lattice statistics
- 82A68 Lattice models
- 82A70 Transport processes [See also 85A25.]
- 82A75 Nuclear reactor theory
- 82A97 Mathematically heuristic statistical physics (must also be assigned at least one other classification number in this section)
- 82A99 Miscellaneous topics

## 83-XX RELATIVITY

- 83-00 Handbooks, dictionaries, and other reference works
- 83-01 Elementary exposition; textbooks
- 83-02 Advanced exposition (research surveys, monographs, etc.)
- 83-03 Historical (must also be assigned at least one classification number from Section 01)
- 83-04 Explicit machine computation and programs (not the theory of computation or programming)
- 83-05 Experimental papers
- 83-06 Proceedings, conferences, etc.
- 83-08 Computational methods
- 83A05 Special relativity**
- 83B05 Observational and experimental questions**
- 83Cxx General relativity**
- 83C05 Einstein's equations
- 83C10 Equations of motion
- 83C15 Closed form solutions
- 83C20 Classes of solutions
- 83C25 Approximation procedures, weak fields
- 83C30 Asymptotic procedures (radiation, news functions, etc.)
- 83C35 Gravitational waves
- 83C40 Groups of motions, invariance groups, conservation laws, etc.
- 83C45 Quantization of the gravitational field
- 83C47 Quantum field theory on curved space-times [See also 81E20.]
- 83C50 Electromagnetic fields
- 83C55 Hydrodynamics [See also 76Y05.]

- 83C75 Space-time singularities; cosmic censorship; etc.  
 83C99 None of the above, but in this section  
**83D05 Relativistic gravitational theories other than Einstein's**  
**83Exx Unified field theories**  
 83E05 Geometrodynamics  
 83E10 Asymmetric field theories  
 83E15 Five- and higher-dimensional theories  
 83E50 Supergravity (For supersymmetry, see 81G20.)  
 83E99 None of the above, but in this section  
**83F05 Cosmology**  
**85-XX ASTRONOMY AND ASTROPHYSICS {For celestial mechanics, see 70F15.}**  
 85-00 Handbooks, dictionaries, and other reference works  
 85-01 Elementary exposition; textbooks  
 85-02 Advanced exposition (research surveys, monographs, etc.)  
 85-03 Historical (must also be assigned at least one classification number from Section 01)  
 85-04 Explicit machine computation and programs (not the theory of computation or programming)  
 85-05 Experimental papers  
 85-06 Proceedings, conferences, etc.  
 85-08 Computational methods  
 85A04 General  
 85A05 Galactic and stellar dynamics  
 85A10 Astronautics  
 85A15 Stellar structure  
 85A20 Stellar atmospheres  
 85A25 Radiative transfer  
 85A30 Hydrodynamic and hydromagnetic problems [See also 76Y05.]  
 85A35 Statistical astronomy  
 85A40 Cosmology (For relativistic cosmology, see 83F05.)  
 85A45 Radio astronomy  
 85A99 Miscellaneous topics  
**86-XX GEOPHYSICS [See also 73Nxx, 76U05, 76V05.]**  
 86-00 Handbooks, dictionaries, and other reference works  
 86-01 Elementary exposition; textbooks  
 86-02 Advanced exposition (research surveys, monographs, etc.)  
 86-03 Historical (must also be assigned at least one classification number from Section 01)  
 86-04 Explicit machine computation and programs (not the theory of computation or programming)  
 86-05 Experimental papers  
 86-06 Proceedings, conferences, etc.  
 86-08 Computational methods  
 86A04 General  
 86A05 Hydrology, hydrography, oceanography [See also 76B15, 76B20, 76B25, 76C15, 76E20, 76Q05, 76Rxx, 76U05.]  
 86A10 Meteorology [See also 76Bxx, 76C15, 76E20, 76N15, 76Q05, 76Rxx, 76U05, 76V05.]  
 86A15 Seismology [See also 73Dxx, 73Fxx, 73Mxx, 73Nxx, 73Q05.]  
 86A20 Potentials, prospecting [See also 76S05, 76W05.]  
 86A25 Geo-electricity and geomagnetism [See also 78A25.]  
 86A30 Geodesy, mapping problems  
 86A35 Atmospheric physics [See also 76C15, 76C20, 76E20, 76Rxx, 76U05, 76V05.]  
 86A60 Geological problems  
 86A99 Miscellaneous topics  
**90-XX ECONOMICS, OPERATIONS RESEARCH, PROGRAMMING, GAMES**  
 90-00 Handbooks, dictionaries, and other reference works  
 90-01 Elementary exposition; textbooks  
 90-02 Advanced exposition (research surveys, monographs, etc.)  
 90-03 Historical (must also be assigned at least one classification number from Section 01)  
 90-04 Explicit machine computation and programs (not the theory of computation or programming)  
 90-06 Proceedings, conferences, etc.  
**90Axx Mathematical economics {For econometrics, see 62P20.}**  
 90A05 Decision theory [See also 62Cxx, 90B50, 90D35.]  
 90A06 Preferences  
 90A07 Theory of group behavior  
 90A08 Social choice, voting  
 90A09 Portfolio theory and financial economics  
 90A10 Utility theory  
 90A11 Production models  
 90A12 Price theory  
 90A14 Equilibrium theory  
 90A15 Static economic models  
 90A16 Dynamic economic models  
 90A17 Multisectoral models  
 90A19 Statistical models  
 90A20 Economic time series analysis [See also 62M10.]  
 90A30 Applications to problems of human society (air pollution, etc.)  
 90A99 None of the above, but in this section  
**90Bxx Operations research and management science**  
 90B05 Logistics, inventory, storage  
 90B10 Flows in networks, deterministic  
 90B15 Flows in networks, probabilistic  
 90B20 Highway traffic  
 90B22 Queueing theory, service models, etc. [See also 60K25.]  
 90B25 Reliability and maintenance [See also 60K20, 62N05.]  
 90B30 Production theory  
 90B35 Scheduling theory  
 90B40 Search theory  
 90B50 Decision theory, including multiple objectives [See also 90A05, 90C31, 90D35.]  
 90B99 None of the above, but in this section  
**90Cxx Mathematical programming {For papers emphasizing calculus of variations or involving abstract spaces, see 49Dxx. For numerical methods, see 65K05.}**  
 90C05 Linear programming  
 90C06 Large scale linear programming  
 90C08 Special problems of linear programming (transportation and multi-index problems, etc.)  
 90C09 Boolean programming  
 90C10 Integer programming  
 90C11 Mixed integer programming  
 90C15 Programming in conditions of uncertainty, stochastic programming  
 90C20 Quadratic programming  
 90C25 Convex programming  
 90C27 Combinatorial programming  
 90C30 Nonlinear programming  
 90C31 Sensitivity, parametric programming, multi-objective programming  
 90C32 Fractional programming  
 90C33 Linear and nonlinear complementarity problems  
 90C35 Network programming, programming in networks  
 90C39 Dynamic programming [See also 49Cxx.]  
 90C40 Markov decision processes; Markov programming and Markov renewal programming  
 90C48 Programming in abstract spaces  
 90C50 Applications of mathematical programming  
 90C99 None of the above, but in this section  
**90Dxx Game theory [See also 49A45, 93E05.]**  
 90D05 2-person games  
 90D10 *n*-person games, noncooperative  
 90D12 *n*-person games, cooperative, solution concepts  
 90D13 Infinite games



- 90D15 Multistage games, stochastic [See also 93E05.]
- 90D20 Multistage games, recursive
- 90D25 Differential games
- 90D26 Pursuit and evasion games
- 90D30 Utility theory [See also 90A10.]
- 90D35 Decision theory [See also 62Cxx, 90A05, 90B50.]
- 90D40 Game theory models [See also 65Cxx, 68Qxx, 68U20.]
- 90D42 Positional and lattice games
- 90D45 Applications of game theory
- 90D99 None of the above, but in this section

## 92-XX BIOLOGY AND BEHAVIORAL SCIENCES

- 92-00 Handbooks, dictionaries, and other reference works
- 92-01 Elementary exposition; textbooks
- 92-02 Advanced exposition (research surveys, monographs, etc.)
- 92-03 Historical (must also be assigned at least one classification number from Section 01)
- 92-04 Explicit machine computation and programs (not the theory of computation or programming)
- 92-06 Proceedings, conferences, etc.
- 92-08 Computational methods
- 92A05 General biology [See also 73-XX, 76-XX, in particular 73Pxx, 76Zxx.]
- 92A06 Biomechanics (general)
- 92A07 Medical applications of biology
- 92A08 Biophysics (general)
- 92A09 Physiology, biochemistry [See also 76-XX, in particular 76Zxx, and 78A70, 80A30, 80A32, 92A27, 92A40.]
- 92A10 Genetics
- 92A12 Problems relating to evolution
- 92A15 Population dynamics, epidemiology
- 92A17 Ecology
- 92A18 Animal behavior
- 92A20 Sociology
- 92A25 Psychology
- 92A27 Psychophysics, psychophysiology [See also 92A09.]
- 92A40 Chemistry [See also 80A30, 80A32, 92A05, 92A09.]
- 92A90 Other applications

## 93-XX SYSTEMS THEORY; CONTROL {For optimal control, see 49-XX.}

- 93-00 Handbooks, dictionaries, and other reference works
- 93-01 Elementary exposition; textbooks
- 93-02 Advanced exposition (research surveys, monographs, etc.)
- 93-03 Historical (must also be assigned at least one classification number from Section 01)
- 93-04 Explicit machine computation and programs (not the theory of computation or programming)
- 93-06 Proceedings, conferences, etc.

### 93Axx General

- 93A05 Axiomatic system theory
- 93A10 General systems
- 93A13 Hierarchical systems
- 93A15 Large scale systems
- 93A20 Cascaded systems
- 93A99 None of the above, but in this section

### 93Bxx Controllability, observability, and system structure

- 93B05 Controllability
- 93B07 Observability
- 93B10 Canonical structure
- 93B15 Realizability of systems from input-output data
- 93B17 Transformation
- 93B20 Minimal systems representations
- 93B25 Algebraic methods
- 93B27 Geometric (including algebro-geometric) methods
- 93B28 Operator-theoretic methods
- 93B30 System identification
- 93B35 Sensitivity
- 93B40 Computational methods
- 93B50 Synthesis and design problems

- 93B55 Pole and zero placement problems
- 93B60 Eigenvalue problems
- 93B99 None of the above, but in this section
- 93Cxx Control systems, guided systems
- 93C05 Linear
- 93C10 Nonlinear
- 93C15 Systems governed by ordinary differential equations
- 93C20 Systems governed by partial differential equations
- 93C22 Systems governed by integral equations
- 93C25 Systems in abstract spaces
- 93C30 Systems governed by functional relations other than differential or integral equations
- 93C35 Multivariable systems
- 93C40 Adaptive
- 93C45 Time-invariant
- 93C50 Time-dependent
- 93C55 Discrete-time
- 93C57 Sampled-data
- 93C60 Continuous-time
- 93C75 Applications of control theory
- 93C99 None of the above, but in this section

### 93Dxx Stability

- 93D05 Lyapunov stability
- 93D10 Popov-type stability of feedback systems
- 93D15 Stabilization of systems by feedback
- 93D20 Asymptotic stability
- 93D25 Input-output approaches
- 93D99 None of the above, but in this section

### 93Exx Stochastic systems and control

- 93E03 Stochastic systems, general
- 93E05 Stochastic games, stochastic differential games
- 93E10 Estimation and detection
- 93E11 Filtering
- 93E12 System identification
- 93E14 Data smoothing
- 93E15 Stochastic stability
- 93E20 Optimal stochastic control
- 93E25 Computational methods
- 93E99 None of the above, but in this section

## 94-XX INFORMATION AND COMMUNICATION, CIRCUITS

- 94-00 Handbooks, dictionaries, and other reference works
- 94-01 Elementary exposition; textbooks
- 94-02 Advanced exposition (research surveys, monographs, etc.)
- 94-03 Historical (must also be assigned at least one classification number from Section 01)
- 94-04 Explicit machine computation and programs (not the theory of computation or programming)
- 94-06 Proceedings, conferences, etc.

### 94Axx Communication, information

- 94A05 Communication theory [See also 60G35.]
- 94A11 Application of orthogonal functions in communication
- 94A12 Characterization of signals
- 94A13 Detection theory
- 94A14 Modulation and demodulation
- 94A15 Information theory, general [See also 62B10.]
- 94A17 Measures of information, entropy
- 94A24 Coding theorems (Shannon theory)
- 94A29 Source coding
- 94A34 Distortion theory
- 94A40 Channel theory
- 94A50 Theory of questionnaires
- 94A60 Cryptography [See also 11T71.]
- 94A99 None of the above, but in this section

### 94Bxx Algebraic theory of error-correcting codes [See also 11T71.]

- 94B05 Linear codes, general
- 94B10 Convolutional codes
- 94B15 Cyclic codes

94B20 Burst-correcting codes  
 94B25 Combinatorial codes  
 94B30 Majority codes  
 94B35 Decoding  
 94B40 Arithmetic codes  
 94B45 Prefix, length-variable, comma-free codes  
 94B50 Synchronization error-correcting codes  
 94B60 Other types of codes  
 94B70 Error probability  
 94B99 None of the above, but in this section

## 94Cxx Circuits, networks

94C05 Analytic circuit theory  
 94C10 Switching theory, applications of Boolean algebra  
 [See also 06E30.]  
 94C15 Applications of graph theory [See also 05Cxx, 68Q90, 68R10.]  
 94C30 Applications of design theory [See also 05Bxx.]  
 94C99 None of the above, but in this section  
 94D05 Fuzzy sets and logic (in connection with questions of Section 94) [See also 03B52, 03E72.]

**For the Errata and Addenda see the annual Author Index M-Z.**











